United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
the University of Florida,
Institute of Food and
Agricultural Sciences,
Agricultural Experiment
Stations, and Soil and
Water Science Department,
and the Florida Department
of Agriculture and
Consumer Services

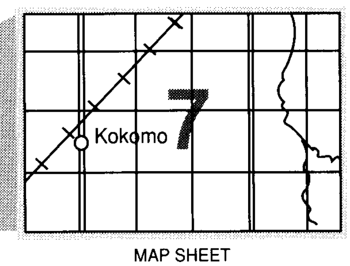
Soil Survey of Hamilton County, Florida

How to Use This Soil Survey

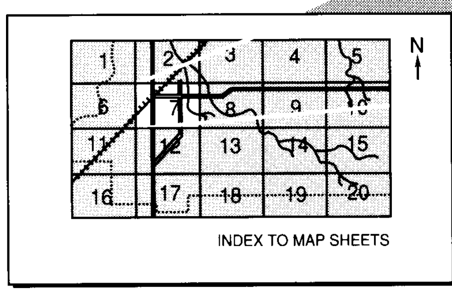
General Soil Map

The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.



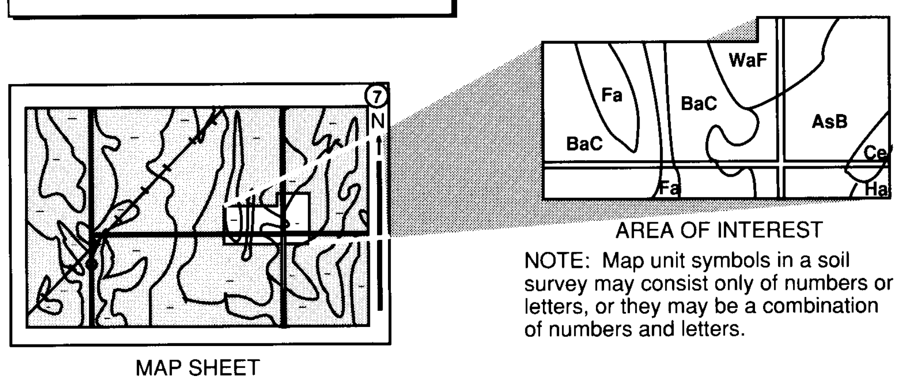
Detailed Soil Maps



The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map units symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.



The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1991. Soil names and descriptions were approved in 1992. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1991. This survey was made cooperatively by the Natural Resources Conservation Service and the University of Florida, Institute of Food and Agricultural Sciences, Agricultural Experiment Stations, and Soil and Water Science Department, and the Florida Department of Agriculture and Consumer Services. The survey is part of the technical assistance furnished to the Hamilton County Soil and Water Conservation District. The Hamilton County Board of Commissioners contributed financially to the acceleration of this survey. Additional assistance was provided by the Florida Department of Transportation.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: The Suwannee River between Hamilton and Columbia Counties. Pelham, Bibb, and Bigbee soils are along the river. They are occasionally flooded.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is http://www.nrcs.usda.gov (click on "Technical Resources").

Contents

Issued 2004

Foreword

This soil survey contains information that affects land use planning in Hamilton County. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations that affect various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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State Conservationist
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Soil Survey of Hamilton County, Florida

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Fieldwork by John Campbell, Joseph V. Chiaretti, Ed Horn, William R. Johnson, Bruce Lindsey, Patti Obyrne-Hazen, Dan Shurtliff, Ken VanDoran, Christopher A. Williams, and Dennis C. Wonderlich, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the University of Florida, Institute of Food and Agricultural Sciences, Agricultural Experiment Stations, and Soil and Water Science Department, and the Florida Department of Agriculture and Consumer Services

Hamilton County is in the northeastern part of Florida (fig. 1). It extends about 15 miles from the Georgia State line to the Suwannee and Columbia County lines. It has a maximum width, between the Suwannee River and the Withlacoochee River, of about 33 miles. Hamilton County is bordered on the west by Madison County, on the east and southeast by Columbia County, and on the south by Suwannee County. The Suwannee River separates Hamilton County from Suwannee County and Columbia County. The Withlacoochee River separates Hamilton County from Madison County.

Hamilton County has a total area of 331,194 acres, or 515 square miles (IFAS, 1990). Jasper, the county seat, is in the central part of the county. In 1991, the population of the county was about 10,996. This was an increase of 25 percent from 1980. The population of Jasper was about 2,099. This was an increase of 3 percent.

Cultivated crops, forestry, timber, and dairy farms are the principal sources of income in the county. Related enterprises support these industries.

General Nature of the County

This section gives general information about the climate, history and development, farming, and recreation in the county.

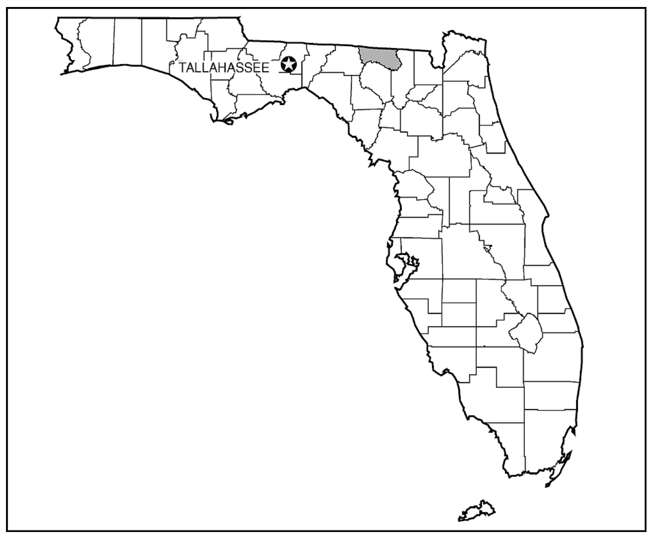

Figure 1.—Location of Hamilton County in Florida.

Climate

Climatic data for this section were prepared by the National Climatic Data Center, Asheville, North Carolina.

Hamilton County has a moderate climate that is favorable for the production of crops, livestock, and pine trees. The summers are long, hot, and humid.

Winters, although punctuated by a periodic invasion of cool to occasionally cold air from the north, are mild because the county is in the southern latitude and is a short distance from the ocean, which is relatively warm.

Table 1 gives data on temperature and precipitation for the survey area for the period 1957 to 1987. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring.

Mean annual precipitation in Hamilton County is 54.24 inches. October and November are the driest months. About 60 percent of the annual rainfall occurs during the months of April through September. About once in 10 years, however, excessive rainfall occurs in the spring. Spring storms have caused rivers to overflow their banks. Heavy summer thundershowers can produce 2 or 3 inches of rainfall in 1 or 2 hours. Daylong rains in the summer are rare. When they do occur, they are usually associated with tropical storms. The average relative humidity is about 75 percent (USDC, 1972).

Hail occasionally falls during thundershowers, but the hailstones generally are small and seldom cause much damage. Snow is very rare and usually melts as it hits the ground.

Tropical storms can effect the area from early June through November. The wind and rain associated with these storms can cause timber and crop damage and local flooding. Hurricane-force winds rarely develop because of the inland location of the county.

Extended dry periods can occur any time during the year but are most common in the spring and fall. These periods can adversely affect crops and other plants. Higher temperatures in summer can also increase evaporation, affecting plants during dry periods of several days.

Tornadoes occasionally accompany heavy thunderstorms or tropical storms. They generally cause limited damage in local areas.

History and Development

Hamilton County was created from Jefferson County (Jasper News, 1976). It was named in honor of Alexander Hamilton, the first Secretary of the Treasury of the United States. Settlers began to move into the area by 1830.

After 1842, the Armed Occupation Act was passed to encourage settlers to come to Florida and, in particular, to settle south of Micanopy. Military land grants and Homestead Acts provided free land to many settlers in Hamilton County.

Trails, small creeks, and rivers were used to carry trade goods and produce to markets. Small boats and barges were built at some of the lumber mills.

In 1850, the population of the county was 2,511. This number included 685 slaves. By 1860, the population had increased to 4,149. This number included 1,397 slaves. Cotton was the main crop. A variety of foodstuffs was also produced, commonly for home consumption.

Between 1855 and 1886, a new courthouse was built at a cost of approximately $2,000.00. The courthouse was burned in 1929. It was later remodeled and repaired.

In 1858, the town of Jasper was incorporated. It had various stores and other businesses and a fraternal organization at this time. The railroad came to Jasper from Live Oak during 1864.

About 1875, the first newspaper in the county was started. It was named “Spirit of the Times” and was published by Augustus Dupont.

Sometime in the 1880’s, an academy was formed in Jasper. The White Spring Normal College, located in White Springs, was a teacher’s college. On March 5, 1890, the Jasper Normal Institute was organized. It was later incorporated into the public school system.

During the period 1886 to 1898, Hamilton County voted “wet.” In 1898, the county voted “dry.”

A railroad was constructed from Lake City to Valdosta in 1891.

By 1915, the population in the county had grown to more than 12,000. Thriving farms, lumber mills, turpentine stills, basket and box mills, hotels, grocery stores, dry goods shops, hardware stores, drug stores, churches, livery stables, schools, gins, and commissaries were in many parts of the county.

Through many years, the county grew despite bank failures, wars, freezes, and booms and depressions; but with the coming of the boll weevil, World War I, the depression of the 1930’s, and further bank failures, the county declined in population to a low of 7,705 in 1960. It had a slight gain to 7,787 by 1970. In 1990, the population was about 11,000.

Agriculture still has an important role in the county. About 77,219 acres of cropland, range, and woodland in the county produces a gross income of $7,768,000. Another 228,055 acres of woodland produces a gross income of $12,498,215. Timber, dairy cattle, beef cattle, swine, poultry, and field crops, such as tobacco, watermelons, corn, peanuts, soybeans, peas, wheat, oats, and sorghum, are the major agricultural products (IFAS, 1990).

Farming

Hamilton County is a general farming and tree producing area. The main crops are corn, tobacco,

soybeans, peanuts, watermelon, small grains, and a few vegetables. Most of the cropland is in the northern part of the county. Most of the soils that are used for crops are deep, droughty sands.

Historically, deep plowing and clean cultivation were used in the county. Gully-control structures, grassed waterways, windbreaks, and permanent vegetative cover are needed to help control erosion.

In 1937, the enactment of legislation to create Soil Conservation Districts stirred the interest of many landowners in Hamilton county. The Hamilton County Soil and Water Conservation District was created and began to promote farming, tree planting, and other farming practices. It had, and still has, the goal of assisting farmers, public agencies, and other land users solve problems related to soil and water conservation. This soil survey is part of that assistance.

For more information regarding farming in the county, see “Crops and Pasture” in the “Use and Management” section.

Recreation

Hamilton County provides a wide variety of opportunities for recreation. Many of these opportunities come from the county’s wide-open spaces and favorable weather.

Blue Spring Park is the most popular recreational site in the county. A crystal clear spring that rises within the park and flows southward attracts thousands of swimmers, divers, canoeists, and other visitors each year.

Troy Spring County Park provides opportunities for water activities on the Suwannee River. Camping, hiking, picnicking, and observing wildlife are also popular activities at this park.

The rivers in the county provide opportunities for canoeing, kayaking, swimming, diving, and sightseeing.

Recreational activities of a more organized nature are available in or near Mayo, where facilities are available for outdoor games, baseball, tennis, racquetball, and basketball. Civic clubs and church groups sponsor many of these activities.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could

confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Ground-Penetrating Radar

In Hamilton County, a ground-penetrating radar (GPR) system was used to document the type and variability of soils that occur in the detailed map units (Doolittle, 1982). Random transects were made with the GPR and by hand. Radar data and information from notes and ground-truth observations made in the field were used to classify the soils and to determine the composition of the map units. The map units described in the section “Detailed Soil Map Units” are based on this data.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Soils on Sand Hills and Ridges

The map units in this group consist of excessively drained to moderately well drained, nearly level to moderately sloping sandy soils on uplands. Most of the soils are sandy throughout. The map units are in the western part of the county.

1. Valdosta-Blanton-Lowndes

Nearly level to strongly sloping, somewhat excessively drained, moderately well drained, and well drained soils that have sandy surface and subsurface layers underlain by a loamy subsoil; formed in sandy and loamy sediments

This map unit consists of soils on sand hills and ridges. Most areas of the map unit are in the northwestern part of the county adjacent to the Lowndes County line. This map unit makes up 9 percent of the county. It is about 38 percent Valdosta soils, 34 percent Blanton soils, 14 percent Lowndes soils, and 14 percent soils of minor extent.

The landscape is interspersed with sharp breaking, long and narrow slopes that are steeper than the surrounding areas. The natural vegetation consists of mixed hardwoods and pines.

Valdosta soils are somewhat excessively drained. Typically, the surface layer is dark brown sand about 9 inches thick. The upper part of the subsoil is yellowish brown loamy sand, the next part is dark yellowish brown sand, and the lower part is yellowish brown loamy sand. The underlying material is light yellowish brown loamy sand that has thin layers of yellowish brown sandy loam.

Blanton soils are moderately well drained. Typically, the surface layer is dark grayish brown sand about 9 inches thick. The upper part of the subsurface layer is yellowish brown sand, the next part is very pale brown sand, and the lower part is yellowish brown sand that has mottles in shades of yellow. The upper part of the subsoil is yellowish brown sandy clay loam that has mottles in shades of brown and gray, the next part is light brownish gray sandy clay loam that has mottles in shades of brown, and the lower part is gray sandy clay loam.

Lowndes soils are well drained. Typically, the surface layer is dark grayish brown sand. The subsurface layer is yellowish brown loamy sand. The upper subsoil is strong brown sandy loam. The layer between the upper subsoil and the lower subsoil is strong brown loamy sand. The lower subsoil is strong brown sandy clay loam that has mottles in shades of gray.

The soils of minor extent in this map unit include Albany, Chipley, and Norfolk soils.

Most areas of this map unit are used for crops, pasture, or the production of pine trees. A few areas are used for urban development.

This map unit is poorly suited, very poorly suited, or not suited to cultivated crops and is suited to pasture and the production of pine trees. Slope, seasonal droughtiness, and rapid leaching of plant nutrients are management concerns.

This map unit is suited to urban development. Seasonal wetness in the Blanton soils, poor filtering characteristics in the Lowndes soils, and slope in some areas are management concerns.

This map unit is poorly suited to recreational development. Sandy surface layers and the slope in some areas are management concerns.

2. Alpin-Foxworth

Nearly level to strongly sloping, excessively drained and moderately well drained soils that are sandy throughout

This map unit consists of soils on uplands, sand hills, and ridges. Most areas of the map unit are in the southwestern part of the county adjacent to the Madison and Suwannee County lines. This map unit makes up 13 percent of the county. It is about 81 percent Alpin soils, 13 percent Foxworth soils, and 6 percent soils of minor extent.

The landscape is interspersed with sharp breaking, long and narrow slopes that are steeper than the surrounding areas. The natural vegetation is mixed hardwoods and pines.

Alpin soils are excessively drained. Typically, the surface layer is dark grayish brown fine sand. The upper part of the subsurface layer is yellowish brown fine sand. The lower part is yellow sand. The upper part of the subsoil is very pale brown sand that has thin layers of strong brown loamy sand. The lower part is pinkish white sand that has thin layers of strong brown loamy sand.

Foxworth soils are moderately well drained. Typically, the surface layer is dark brown sand. The underlying material is sand. The upper part of the underlying material is yellowish brown, the next part is brownish yellow and has mottles in shades of brown, and the lower part is very pale brown grading to white and has mottles in shades of brown, red, and yellow.

The soils of minor extent in this map unit include Otela, Shadeville, and Wadley soils.

Most areas of this map unit are used for crops, pasture, or the production of pine trees. A few areas are used for urban development.

This map unit is poorly suited to crops and is suited to pasture, hayland, and the production of pine trees. Seasonal droughtiness is a management concern.

This map unit is suited to urban development. Seasonal droughtiness is a management concern.

This map unit is poorly suited to recreational development. Sandy surface layers are a management concern.

Soils on Uplands, Low Ridges, and Broad Flats

The map units in this group consists of moderately well drained to poorly drained, nearly level to gently sloping soils. Some of the soils are sandy throughout. Some have loamy material below a depth of 20 to 40 inches. The map units are in the northeastern, western, central, and southern parts of the county.

3. Blanton

Nearly level to gently sloping, moderately well drained soils that have a sandy surface layer and a loamy subsoil

This map unit consists of soils on uplands and low ridges. Most areas of the unit are in the southern part of the county adjacent to the Alapaha River. This map unit makes up 5 percent of the county. It is about 77 percent Blanton soils and 23 percent soils of minor extent.

The landscape is interspersed with sharp breaking, long and narrow slopes that are steeper than the surrounding areas. The natural vegetation consists of mixed hardwoods and pines (fig 2.).

Typically, the surface layer of the Blanton soils is very dark grayish brown loamy sand about 6 inches thick. The subsurface layer is dark brown grading to yellowish brown, brownish yellow, and yellow loamy sand. The upper part of the subsoil is very pale brown sandy clay loam. The lower part is sandy clay loam that is mottled in shades of gray, yellow, and brown.

The soils of minor extent in this map unit include Albany, Chipley, Valdosta, and Wampee soils.

Most areas of this map unit are used for crops, pasture, or the production of pine trees. A few areas are used for urban development.

This map unit is poorly suited to cultivated crops and is suited to pasture and to the production of pine trees. Droughtiness and rapid leaching of plant nutrients are management concerns.

This map unit is suited to urban development. Seasonal wetness is a management concern.

This map unit is poorly suited to recreational development. Sandy surface layers and the slope in some areas are management concerns.

4. Albany-Plummer

Nearly level to gently sloping, somewhat poorly drained and poorly drained soils that have a sandy surface layer and a loamy subsoil

This map unit consists of soils in low areas of the uplands and on low ridges in areas of flatwoods. It is throughout the county along the Lowndes County, Suwannee County, and Columbia County lines. This

Figure 2.—An area of Blanton soils, which are suited to the commercial production of pines.

map unit makes up 10 percent of the county. It is about 56 percent Albany soils, 33 percent Plummer soils, and 11 percent soils of minor extent.

The natural vegetation consists of mixed hardwoods and pines.

Albany soils are somewhat poorly drained. Typically, the surface layer is dark gray loamy fine sand about 10 inches thick. The subsurface layer is sand. It is brown grading to light gray. The upper part of the subsoil is light brownish gray sandy loam. The next part is light brownish gray sandy clay loam. The lower part is dark brown sandy loam.

Plummer soils are poorly drained. Typically, the surface layer is very dark gray sand about 9 inches thick. The subsurface layer is sand. It is grayish brown grading to light brownish gray and light gray. The subsoil is light gray sandy loam grading to sandy clay loam.

The soils of minor extent in this map unit include Goldhead, Pelham, and Sapelo soils.

Most areas of this map unit are poorly suited to cultivated crops and are suited to pasture and to the production of pine trees. Seasonal wetness is a management concern.

This map unit is poorly suited to urban development. Seasonal wetness is a management concern.

This map unit is poorly suited to recreational development. Sandy surface layers and wetness are management concerns.

5. Pottsburg-Chipley

Nearly level to gently sloping, poorly drained and somewhat poorly drained soils that are sandy to a depth of 80 inches or more

This map unit consists of soils in low areas on the uplands and on low ridges in areas of flatwoods. It is in the northwestern part of the county along the Lowndes County line. This map unit makes up 3 percent of the county. It is about 50 percent Pottsburg soils, 40 percent Chipley soils, and 10 percent soils of minor extent.

The natural vegetation consists of mixed hardwoods and pines.

Pottsburg soils are poorly drained. Typically, the surface layer is very dark gray brown sand about 7 inches thick. The subsurface layer is dark grayish brown and light brownish gray sand. The upper part of the subsoil is grayish brown loamy sand. The lower part is dark reddish brown sand.

Chipley soils are somewhat poorly drained. Typically, the surface layer is very dark gray sand about 8 inches thick. The upper part of the underlying material is brown sand, the next part is pale brown sand, and the lower part is light brownish gray sand.

The soils of minor extent in this map unit include Mascotte, Plummer, and Sapelo soils.

Most areas of this map unit are poorly suited to cultivated crops and are suited to improved pasture grasses and to the production of pine trees. Seasonal wetness is a management concern.

This map unit is poorly suited to urban development. Seasonal wetness is a management concern.

This map unit is poorly suited to recreational development. Sandy surface layers and wetness are management concerns.

6. Albany-Ocilla-Blanton

Nearly level to gently sloping, somewhat poorly drained and moderately well drained soils that have a sandy surface layer to a depth of 20 to 40 inches and have a loamy subsoil

This map unit consists of soils in low areas on the uplands and on low ridges in areas of flatwoods. It is in the southern part of the county along the Suwannee River. This map unit makes up 5 percent of the county. It is about 56 percent Albany soils, 19 percent Ocilla soils, 11 percent Blanton soils, and 14 percent soils of minor extent.

The natural vegetation consists of mixed hardwoods and pines.

Albany soils are somewhat poorly drained. Typically, the surface layer is dark gray loamy fine sand about 10 inches thick. The subsurface layer is sand. It is brown grading to light gray. The upper part of the subsoil is light brownish gray sandy loam. The next part is light brownish gray sandy clay loam. The lower part is dark brown sandy loam.

Ocilla soils are somewhat poorly drained. Typically, the surface layer is dark gray loamy fine sand about 10 inches thick. The subsurface layer is loamy fine sand. The upper part is brownish yellow, the next part is pale yellow, and the lower part is brownish yellow. The upper part of the subsoil is coarsely mottled dark yellowish brown, gray, yellowish brown, and red fine sandy loam. The lower part is gray sandy clay.

Blanton soils are moderately well drained. Typically, the surface layer is dark grayish brown sand about 9 inches thick. The subsurface layer is sand. It is yellowish brown grading to very pale brown. The upper part of the subsoil is yellowish brown sandy clay loam. The lower part is light brownish gray or gray sandy clay loam.

The soils of minor extent in this map unit include Bonneau, Chipley, Plummer, and Sapelo soils.

Most areas of this map unit are poorly suited to cultivated crops and are suited to improved pasture grasses and to the production of pine trees. Droughtiness and seasonal wetness are management concerns.

This map unit is moderately suited to urban development. Wetness is a management concern.

This map unit is poorly suited to recreational development. Sandy surface layers and wetness are management concerns.

Soils in Areas of Flatwoods and in Depressions

The map units in this group consist of poorly drained and very poorly drained, nearly level soils. Some of the soils have an organic and loamy subsoil. Some have an organic surface layer underlain by a sandy and loamy subsoil. The map units are in the eastern part of the county.

7. Mascotte-Pamlico

Nearly level, poorly drained and very poorly drained soils; some are sandy, are organic coated in the upper part of the subsoil, and are loamy in the lower part of the subsoil, and some have an organic surface layer and a loamy subsoil

This map unit consists of soils in areas of flatwoods. It is in the northern and southeastern parts of the

county. It makes up 14 percent of the county. It is about 65 percent Mascotte soils, 30 percent Pamlico soils, and 5 percent soils of minor extent.

The landscape consists of areas of flatwoods interspersed with a few slight knolls and many depressions. Some of the depressional areas are connected by narrow drainageways. In the areas of flatwoods, the natural vegetation is slash pine, loblolly pine, and longleaf pine. The understory consists mostly of saw palmetto and mixed shrubs and grasses. In the depressions, the natural vegetation consists of mixed hardwoods and water-tolerant shrubs, sedges, rushes, and grasses.

Mascotte soils are poorly drained. Typically, the surface layer is black sand about 5 inches thick. The subsurface layer is light brownish gray sand. The upper subsoil is very dark brown and dark reddish brown loamy sand. The transitional layer between the upper subsoil and the lower subsoil is light gray sand. The lower subsoil is gray fine sandy loam. The underlying material is reddish gray loamy sand.

Pamlico soils are very poorly drained. Typically, the surface layer is 25 inches thick. It is dark reddish brown muck over black muck. The underlying layers are grayish brown sand grading to very dark gray sandy clay loam.

The soils of minor extent in this map unit include Pelham and Sapelo soils.

Most areas of this map unit are poorly suited to cultivated crops and are suited to pasture and to the production of pine trees. Wetness is a management concern.

This map unit is poorly suited to urban development. Wetness is a management concern.

This map unit is poorly suited to recreational development. Wetness and a high content of sand or organic matter in the surface layer are management concerns.

8. Mascotte-Plummer-Surrency

Nearly level, poorly drained and very poorly drained soils; some are sandy, are organic coated in the upper part of the subsoil, and are loamy in the lower part of the subsoil; some have sandy surface and subsurface layers to a depth of 40 inches and have a loamy subsoil; and some have sandy surface and subsurface layers to a depth of 30 inches and have a loamy subsoil

This map unit consists of soils in areas of flatwoods. It is in the eastern part of the county. It makes up 21 percent of the county. It is about 57 percent Mascotte soils, 17 percent Plummer soils, 17 percent Surrency soils, and 9 percent soils of minor extent.

The landscape consists of areas of flatwoods interspersed with a few slight knolls and many depressions. Some of the depressional areas are connected by narrow drainageways. In the areas of flatwoods, the natural vegetation is slash pine, loblolly pine, and longleaf pine. The understory consists mostly of saw palmetto and mixed shrubs and grasses. In the depressions, the natural vegetation consists of mixed hardwoods and water-tolerant shrubs, sedges, rushes, and grasses.

Mascotte soils are poorly drained. Typically, the surface layer is black sand about 5 inches thick. The subsurface layer is light brownish gray sand. The upper subsoil is very dark brown and dark reddish brown loamy sand. The transitional layer between the upper subsoil and the lower subsoil is light gray sand. The lower subsoil is gray fine sandy loam. The underlying material is reddish gray loamy sand.

Plummer soils are poorly drained. Typically, the surface layer is very dark gray sand about 9 inches thick. The upper part of the subsurface layer is sand. It is grayish brown grading to light brownish gray. The lower part is light gray sand. The subsoil is light gray sandy loam grading to sandy clay loam.

Surrency soils are very poorly drained. Typically, the surface layer is black mucky fine sand about 10 inches thick. The subsurface layer is light gray sand grading to grayish brown loamy sand. The subsoil is dark gray fine sandy loam grading to dark gray loamy sand.

In the areas of flatwoods, this map unit is poorly suited to cultivated crops and is suited to pasture and to the production of pine trees. In the depressions, it is poorly suited to crops, pasture, and pine trees. Wetness is a management concern.

This map unit is poorly suited to urban development. Wetness is a management concern.

This map unit is poorly suited to recreational development. Wetness, sandy surface layers, and ponding are management concerns.

9. Dorovan-Sapelo-Mascotte

Nearly level, very poorly drained and poorly drained soils; some have an organic surface layer underlain by sandy material, and some are sandy, have an organic coated subsoil, and have a loamy subsoil below a depth of 30 inches

This map unit consists of soils in areas of flatwoods. It is in the eastern part of the county. It makes up 3 percent of the county. It is about 50 percent Dorovan soils, 20 percent Sapelo soils, 20

percent Mascotte soils, and 10 percent soils of minor extent.

The landscape is depressional and is interspersed with a few areas of flatwoods and slight knolls. Most of the depressional areas are connected by narrow drainageways. In the depressional areas, the vegetation is mixed hardwoods and an understory of shrubs. In the areas of flatwoods, the natural vegetation is slash pine, loblolly pine, and longleaf pine and the understory consists mostly of saw palmetto and mixed shrubs and grasses.

Dorovan soils are very poorly drained. Typically, the surface layer is very dark brown muck. The underlying material is black muck and dark gray sand.

Sapelo soils are poorly drained. Typically, the surface layer is black sand about 7 inches thick. The subsurface layer is sand. It is dark gray grading to gray. The upper subsoil is 9 inches thick and stained with organic matter. It is very dark brown sand in the upper part and dark yellowish brown sand in the lower part. The transitional layer between the upper subsoil and the lower subsoil is 20 inches of sand. It is very pale brown grading to pale brown. The lower subsoil is light gray sandy clay loam to a depth of more than 80 inches.

Mascotte soils are poorly drained. Typically, the surface layer is black sand about 5 inches thick. The subsurface layer is light brownish gray sand. The upper subsoil is very dark brown loamy sand and dark reddish brown loamy sand. The transitional layer between the upper subsoil and the lower subsoil is light gray sand. The lower subsoil is gray fine sandy loam. The underlying material is reddish gray loamy sand.

In the areas of flatwoods, this map unit is poorly suited to cultivated crops and is suited to pasture and to the production of pine trees. In the depressional areas, it is poorly suited to crops, pasture, and pine trees. Wetness is a management concern.

This map unit is poorly suited to urban development. Wetness is a management concern.

This map unit is poorly suited to recreational development. Wetness and a high content of sand or organic matter in the surface layer are management concerns.

Soils on Flood Plains

The map units in this group consist of excessively drained, moderately well drained, somewhat poorly drained, and poorly drained, nearly level and gently sloping soils. Some are sandy throughout, others are sandy to a depth of 20 to 80 inches and have a loamy subsoil. The map units are mainly on flood plains along the Alapaha, Withlacooche, and Suwannee Rivers.

10. Mascotte-Plummer

Nearly level, poorly drained soils on flood plains; some are sandy and have an organic coated subsoil underlain by loamy material, and some are sandy to a depth of 40 inches and are underlain by loamy material

This map unit is on the long, narrow flood plain along the Suwannee River at the eastern edge of the county. It makes up 3 percent of the county. It is about 51 percent Mascotte soils, 35 percent Plummer soils, and 14 percent soils of minor extent.

The landscape is interspersed with depressions. Some of the depressional areas are connected by narrow drainageways. The natural vegetation is live oak and slash pine. The understory consists mostly of shrubs.

Typically, the surface layer of the Mascotte soils is very dark gray sand about 5 inches thick. The subsurface layer is grayish brown sand. The upper part of the upper subsoil is black sand, the next part is very dark grayish brown sand, and the lower part is dark reddish brown sand. The transitional layer between the upper subsoil and the lower subsoil is brown loamy sand. The upper part of the lower subsoil is light gray sandy loam. The lower part is light gray sandy clay loam grading to light gray sandy loam.

Typically, the surface layer of the Plummer soils is very dark gray sand about 9 inches thick. The subsurface layer is sand. In the upper part, it is grayish brown grading to light brownish gray. In the lower part, it is light gray. The subsoil is light gray sandy loam grading to sandy clay loam.

The soils of minor extent in this map unit include Osier and Stockade soils.

Most areas of this map unit are unsuited to cultivated crops, pasture, and the production of pine trees. Wetness and flooding are management concerns.

This map unit is poorly suited to urban development. Wetness and flooding are management concerns.

This map unit is poorly suited to recreational development. Wetness, sandy surface layers, and flooding are management concerns.

11. Eunola-Alpin-Bigbee

Nearly level to strongly sloping, moderately well drained and excessively drained soils on flood plains; some are sandy to a depth of 20 inches or less, and some are sandy throughout

This map unit is on the long, narrow flood plain along the Withlacooche River at the southwestern edge of the county and along the Alapaha River in the

northern part of the county. This map unit makes up 2 percent of the county. It is about 35 percent Eunola soils, 33 percent Alpin soils, 20 percent Bigbee soils, and 12 percent soils of minor extent.

The natural vegetation consists of mixed hardwoods and pines and an understory of shrubs and weeds.

Eunola soils are moderately well drained. Typically, the surface layer is grayish brown loamy fine sand about 6 inches thick. The next layer is light yellowish brown fine sandy loam. The subsoil is sandy clay loam. It is dark yellowish brown grading to yellowish brown. The next layer is brownish yellow fine sandy loam. The underlying material is very pale brown loamy sand that has strata of sandy loam.

Alpin soils are excessively drained. Typically, the surface layer is dark grayish brown fine sand about 3 inches thick. The upper part of the subsurface layer is light yellowish brown fine sand. The next part is also fine sand. It is very pale brown grading to yellow. The lower part is very pale brown sand grading to white sand and contains thin layers of very pale brown loamy sand.

Bigbee soils are excessively drained. Typically, the surface layer is light brownish gray fine sand about 9 inches thick. The underlying layers are fine sand. The upper part is dark yellowish brown, the next part is pale brown grading to brown, and the lower part is light gray.

The soils of minor extent in this map unit include Kenansville and Ocilla soils.

In most areas of the Eunola soils, this map unit is suited to cultivated crops, pasture, and the production of pine trees. In most areas of the Alpin and Bigbee soils, it is unsuited to crops, pasture, and the production of pine trees. Flooding is a management concern.

Most areas of this map unit are unsuited to urban development. Flooding is a management concern.

This map unit is poorly suited to recreational development. Sandy surface layers and flooding are management concerns.

12. Blanton-Kenansville

Nearly level to gently sloping, moderately well drained soils that are sandy to a depth of 40 inches or more and have a loamy subsoil; on low terraces on flood plains along rivers

This map unit is on the long, narrow flood plain along the Withlacooche River at the western edge of the county and along the Alapaha River in the central part of the county. This map unit makes up 1 percent of the county. It is about 41 percent Blanton soils, 36 percent Kenansville soils, and 23 percent soils of minor extent.

The natural vegetation consists of mixed hardwoods and pines and an understory of shrubs and vines.

Typically, the surface layer of the Blanton soils is dark grayish brown sand about 9 inches thick. The subsurface layer is sand. It is yellowish brown grading to very pale brown. The upper part of the subsoil is yellowish brown sandy clay loam. The lower part is light brownish gray or gray sandy clay loam.

Typically, the surface layer of the Kenansville soils is dark brown loamy sand 9 inches thick. The subsurface layer is yellowish brown loamy sand. The upper part of the subsoil is dark yellowish brown sandy loam. The lower part is yellowish brown sandy loam. The underlying material is light yellowish brown loamy sand.

The soils of minor extent in this map unit include Alpin and Ocilla soils.

This map unit is poorly suited to cultivated crops and is suited to improved pasture grasses and to the production of pine trees. Flooding is a management concern.

This map unit is unsuited to urban development. Flooding is a management concern.

This map unit is poorly suited to recreational development. Sandy surface layers and flooding are management concerns.

13. Pelham-Bibb-Bigbee

Nearly level to undulating, poorly drained and excessively drained soils that are sandy to a depth of 30 inches and have a loamy subsoil or that are sandy throughout; in wet, lowland positions and on ridged terraces on flood plains along rivers and tributaries

This map unit is on the long, narrow flood plain along the Withlacoochee River at the southwestern edge of the county and along the Suwannee River in the eastern and southern parts of the county. This map unit makes up 2 percent of the county. It is about 56 percent Pelham soils, 15 percent Bibb soils, 10 percent Bigbee soils, and 19 percent soils of minor extent.

In areas of the Pelham and Bibb soils, the natural vegetation is mixed hardwoods and an understory of saw palmetto and shrubs. In areas of the Bigbee soils, the vegetation is mixed pines and oaks and an understory of shrubs and weeds.

Pelham soils are poorly drained. Typically, the surface layer is very dark gray sand about 7 inches

thick. The subsurface layer is sand. It is dark gray grading to grayish brown. The subsoil is grayish brown sandy loam grading to gray and dark gray sandy clay loam.

Bibb soils are poorly drained. Typically, the surface layer is very dark gray silt loam about 2 inches thick grading to dark brown sandy loam. The underlying layers are grayish brown sand grading to sandy loam. Below this is dark gray clay stratified with light gray loamy fine sand.

Bigbee soils are excessively drained. Typically, the surface layer is light brownish gray fine sand about 9 inches thick. The underlying layers are fine sand. In the upper part, the underlying layers are dark yellowish brown. In the next, they are pale brown grading to brown. In the lower part, they are light gray.

The soils of minor extent in this map unit include Blanton and Wahee soils.

This map unit is poorly suited to cultivated crops and is suited to improved pasture grasses and to trees. Wetness and flooding are management concerns.

This map unit is poorly suited to urban development. Wetness and flooding are management concerns.

This map unit is poorly suited to recreational development. Sandy surface layers, wetness, and flooding are management concerns.

14. Blanton-Bigbee-Wahee

Nearly level to strongly sloping, somewhat poorly drained, moderately well drained, and excessively drained soils that are sandy to a depth of 40 inches or more and have loamy subsoil, that are sandy throughout, or that are sandy to a depth of less than 20 inches and have a loamy subsoil; on low terraces on flood plains along rivers and tributaries

This map unit is on the long, narrow flood plain along the Suwannee River in the southern part of the county. It makes up 1 percent of the county. It is about 38 percent Blanton soils, 27 percent Bigbee soils, 27 percent Wahee soils, and 8 percent soils of minor extent.

The natural vegetation consists of mixed hardwoods and an understory of shrubs.

Blanton soils are moderately well drained. Typically, the surface layer is dark grayish brown sand about 9 inches thick. The subsurface layer is sand. It is yellowish brown grading to very pale brown. The upper part of the subsoil is yellowish brown sandy clay loam. The lower part is light brownish gray or gray sandy clay loam.

Bigbee soils are excessively drained. Typically, the surface layer is light brownish gray fine sand about 9 inches thick. The underlying layers are fine sand. In the upper part, the underlying layers are dark yellowish brown. In the next part, they are pale brown grading to brown. In the lower part, they are light gray.

Wahee soils are somewhat poorly drained. Typically, the surface layer is very dark gray fine sandy loam about 5 inches thick. The subsoil, to a depth of 56 inches, is brown grading to gray clay. The underlying layer to a depth of 80 inches or more is gray sandy clay loam.

The soils of minor extent in this map unit include Bivans soils.

This map unit is poorly suited to cultivated crops and is suited to improved pasture grasses and to the production of pine trees. Wetness and flooding are management concerns.

This map unit is poorly suited to urban development. Wetness and flooding are management concerns.

This map unit is poorly suited to recreational development. Sandy surface layers, wetness, and flooding are management concerns.

Soils in Mined Areas

This map unit consists of nearly level to gently sloping areas that have been reworked by earth moving equipment during phosphate mining and areas of colloidal clay (slime) pumped from the mines and settled in holding ponds. Some areas are stratified with sandy, loamy, and clayey layers; others are clayey throughout. The map unit is in the southern part of the county.

15. Arents-Hydraquents

Nearly level to gently sloping areas that have been reworked by earth moving equipment during phosphate mining; holding ponds containing settled colloidal clay (slime) pumped from the mines; some areas are stratified with sandy, loamy, and clayey layers; some are clayey throughout

This map unit is in the southern part of the county. It makes up 8 percent of the county. It is about 51 percent Arents, 28 percent Hydraquents, and 21 percent soils of minor extent.

The landscape is interspersed with constructed holding ponds. This map unit has no natural vegetation. The Arents support grasses or pine trees. The Hydraquents support water-tolerant plants.

The Arents have variable drainage. The surface

layer commonly is grayish brown sand to a depth of about 3 inches. The underlying material is light gray sand mixed with brown sand. Some areas have coarse sand or fragments of rocks.

The Hydraquents are very poorly drained. The soil material is gray and light gray clay. Most of this material is about 85 percent clay, 10 percent silt, and 5 percent sand.

Of minor extent in this map unit are areas of Gypsum land, water, and Pits.

Most areas of this map unit are unsuited to cultivated crops, pasture, and pine trees. Droughtiness and ponding are management concerns.

This map unit is generally unsuited to urban development. Sandy surface layers and ponding are management concerns.

Detailed Soil Map Units

The map units delineated on the detailed maps at the back of this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit, including a description of the ecological communities (USDA, 1989), is given under the heading "Use and Management of the Soils."

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some "included" areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Blanton sand, 0 to 5 percent slopes, is a phase of the Blanton series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar

in all areas. Valdosta-Lowndes complex, 12 to 20 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Plummer and Surrency soils, depressional, is an undifferentiated group in this survey area.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits is an example.

Table 3 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

2—Albany fine sand, 0 to 5 percent slopes

This very deep, somewhat poorly drained soil is in low areas on uplands and on low ridges. Individual areas are irregular or elongated in shape. They range from 3 to 100 acres in size.

Typically, the surface layer is dark grayish brown fine sand about 9 inches thick. The subsurface layer extends to a depth of 57 inches. In the upper part, it is light yellowish brown fine sand. In the next part, it is pale yellow fine sand that has strong brown and white mottles. In the lower part, it is pale yellow fine sand that has yellowish red and white mottles. The subsoil extends to a depth of 80 inches. In the upper part, it is light yellowish brown fine sandy loam that has brown and light gray mottles. In the lower part, it is gray sandy clay loam that has strong brown mottles.

In 80 percent of the areas mapped as Albany fine sand, 0 to 5 percent slopes, the Albany soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are Blanton and Plummer soils. The moderately well drained Blanton soils are in the slightly higher positions. The poorly drained Plummer soils are in the slightly lower positions. Also included are small areas that have a slope of 5 to 10 percent.

Important properties of the Albany soil—

Depth to the seasonal high water table: 1 to 2$^1/_2$ feet from December through March
Permeability: Moderate or moderately slow
Available water capacity: Low
Flooding: None

This soil is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, loblolly pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge bluestem

This soil is suited to cultivated crops. Seasonal wetness and droughtiness are management concerns. Irrigation is needed during dry periods. Residue management, including minimum tillage, is needed to preserve moisture during dry periods and to minimize erosion. Planting water-tolerant crops and using shallow surface drainage help to overcome the seasonal wetness. Lime and fertilizer, which are needed to compensate for the low fertility of the soil, should be applied according to the needs of the crop.

This soil is suited to pasture and to hay crops. Seasonal wetness and droughtiness are management concerns. Improved bermudagrass and bahiagrass produce moderate yields if properly managed. Controlled grazing helps to overcome the seasonal wetness and droughtiness. Proper applications of lime and fertilizer are needed to obtain optimum production.

This soil is suited to the production of loblolly pine, slash pine, and longleaf pine. Moderate equipment limitations, seedling mortality, and plant competition are management concerns. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations,

reduces the extent of soil compaction, and minimizes the root damage caused by harvesting. Site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding help to control competing vegetation and facilitate planting. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil.

This soil is poorly suited to urban development. Wetness and seasonal droughtiness are management concerns. Septic tank absorption fields can be mounded to maintain the system above the seasonal high water table. Suitable fill material can be used to elevate building sites. Mulch, fertilizer, and irrigation help establish lawn grasses and other small-seeded plants. This soil is poorly suited to local roads and streets. Drainage and the placement of suitable fill for elevating roadbeds can be used to alleviate the wetness affecting road construction.

The capability subclass is IIIe. The woodland ordination symbol is 10W.

3—Alpin sand, 0 to 5 percent slopes

This very deep, excessively drained soil is in broad areas on uplands. Individual areas are irregular in shape. They range from about 4 to 300 acres in size. Slopes are smooth and convex.

Typically, the surface layer is dark grayish brown sand about 4 inches thick. The subsurface layer extends to a depth of 47 inches. It is yellowish brown sand in the upper part and yellow sand in the lower part. The subsoil extends to a depth of 80 inches or more. In the upper part, it is very pale brown sand that has thin layers of strong brown loamy sand. In the lower part, it is pinkish white sand that has thin layers of strong brown loamy sand.

In 95 percent of the areas mapped as Alpin sand, 0 to 5 percent slopes, the Alpin soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Albany, Blanton, and Chipley soils. The somewhat poorly drained Albany and moderately well drained Blanton soils are in the lower positions and have a loamy subsoil below a depth of 40 inches. The somewhat poorly drained Chipley soils are also in the lower positions. Also included in mapping are soils that have a clayey subsoil within a depth of 40 inches.

Important properties of the Alpin soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Rapid
Available water capacity: Low
Flooding: None

This soil is in the Longleaf Pine-Turkey Oak Hills ecological community, which has several variations of tree stands. Mature, natural stands of trees have an overstory of scattered longleaf pine. In areas where the pines have been removed, oaks are predominant. Ground cover is scattered, and numerous bare areas are noticeable.

Characteristic plant community—

Trees: Longleaf pine, turkey oak, and bluejack oak
Herbaceous plants and vines: Aster, blazingstar, brackenfern, butterfly pea, elephantsfoot, grassleaf goldaster, partridge pea, pineland beggarweed, sandhill milkweed, showy crotalaria, and wild indigo
Grasses and grasslike plants: Curtiss' dropseed, hairy panicum, yellow Indiangrass, low panicum, and pineywood dropseed

This soil is poorly suited to cultivated crops. The coarse texture prevents the soil from retaining sufficient moisture during the dry periods, and seasonal droughtiness is a management concern. Plant nutrients leach rapidly. Corn, peanuts, and watermelons can be grown on this soil but require intensive management. A crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime are recommended. Irrigation is needed during droughty periods. Wind erosion is a severe hazard if the surface layer is unprotected. Planting cover crops helps to minimize this hazard.

This soil is suited to pasture and to hay crops. Seasonal droughtiness is a management concern. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown, but yields are reduced by periodic drought. Controlled grazing helps to maintain plant vigor and to obtain maximum yields. Regular applications of fertilizer and lime are needed.

This soil is suited to the production of slash pine, longleaf pine, and sand pine. Moderate equipment limitations and seedling mortality are management concerns. The equipment limitations can be overcome by harvesting when the soil is moist. Seedling mortality can be partly offset by increasing the rate and depth of tree planting and by mulching with the residual biomass that is left after harvesting. A logging system that leaves most of the biomass on the surface is preferred.

This soil is suited to urban development. The sandy textures are a management concern. Landscaping

with drought-tolerant grasses, shrubs, and trees; watering on a regular basis; and mulching help to establish plants and lawns.

The capability subclass is IVs. The woodland ordination symbol is 8S

4—Alpin sand, 5 to 8 percent slopes

This very deep, excessively drained soil is on upland side slopes. Individual areas are irregular in shape. They range from about 4 to 80 acres in size.

Typically, the surface layer is dark grayish brown sand about 4 inches thick. The subsurface layer extends to a depth of 47 inches. It is yellowish brown sand in the upper part and yellow sand in the lower part. The subsoil extends to a depth of 80 inches. In the upper part, it is very pale brown sand that has thin layers of strong brown loamy sand. In the lower part, it is pinkish white sand that has thin layers of strong brown loamy sand.

In 90 percent of the areas mapped as Alpin sand, 5 to 8 percent slopes, the Alpin soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Albany and Blanton soils. The somewhat poorly drained Albany soils and the moderately well drained Blanton soils are in the lower positions and have a loamy subsoil below a depth of 40 inches.

Important properties of the Alpin soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Rapid
Available water capacity: Low
Flooding: None

This soil is in the Longleaf Pine-Turkey Oak Hills ecological community, which has several variations of tree stands. Mature, natural stands of trees have an overstory of scattered longleaf pine. In areas where the pines have been removed, oaks are predominant. Ground cover is scattered, and numerous bare areas are noticeable.

Characteristic plant community—

Trees: Longleaf pine, slash pine, loblolly pine, post oak, turkey oak, bluejack oak, and blackjack oak
Herbaceous plants and vines: Aster, blazingstar, brackenfern, butterfly pea, elephantsfoot, grassleaf goldaster, partridge pea, pineland beggarweed, sandhill milkweed, showy crotalaria, and wild indigo
Grasses and grasslike plants: Curtiss' dropseed, hairy panicum, yellow Indiangrass, low panicum, and pineywood dropseed

This soil is not suited to cultivated crops. Slope and droughtiness are severe limitations.

This soil is suited to pasture and to hay crops. Seasonal droughtiness is a management concern. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown, but yields are reduced by periodic drought. Controlled grazing helps to maintain plant vigor and to obtain maximum yields. Regular applications of fertilizer and lime are needed.

This soil is suited to the production of slash pine, longleaf pine, and sand pine. Moderate equipment limitations and seedling mortality are management concerns. The equipment limitations can be overcome by harvesting when the soil is moist. Seedling mortality can be partly offset by increasing the rate and depth of tree planting and by mulching with the residual biomass that is left after harvesting. A logging system that leaves most of the biomass on the surface is preferred.

This soil is suited to urban development. The sandy texture of the surface layer is a management concern. Also, the slope is a management concern affecting small commercial buildings. Landscaping with drought-tolerant grasses, shrubs, and trees; regularly applying water; and mulching help to establish lawns and landscaping plants.

The capability subclass is VIs. The woodland ordination symbol is 8S.

5—Blanton sand, 0 to 5 percent slopes

This very deep, moderately well drained soil is in broad upland areas. Slopes are smooth and convex. Individual areas are irregular or elongated in shape. They range from about 3 to 80 acres in size.

Typically, the surface layer is dark grayish brown sand about 9 inches thick. The subsurface layer extends to a depth of 54 inches. In the upper part, it is yellowish brown sand. In the next part, it is light yellowish brown sand. In the lower part, it is very pale brown sand that has brownish yellow mottles. The subsoil extends to a depth of 80 inches. In the upper part, it is yellowish brown sandy clay loam that has strong brown and gray mottles. In the next part, it is light brownish gray sandy clay loam that has strong brown mottles. In the lower part, it is gray sand clay loam.

In 80 percent of the areas mapped as Blanton sand, 0 to 5 percent slopes, the Blanton soil and similar soils make up 87 to 99 percent of the unit.

Dissimilar soils make up the other 1 to 13 percent. Included in mapping are some small areas of the somewhat poorly drained Albany soils in the lower positions. Also included are small areas of soils that have a water table at a depth of 30 to 48 inches and soils that have a subsoil that is stained with organic matter below a depth of 60 inches.

Important properties of the Blanton soil—

Seasonal high water table: At a depth of 4 to 6 feet from March through August, perched
Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, loblolly pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This soil is poorly suited to cultivated crops. Seasonal droughtiness and erosion in the more sloping areas are management concerns. Irrigation is needed during dry periods. Residue management, including minimum tillage, is needed to preserve moisture during dry periods and to minimize erosion. Applications of lime and fertilizer help to compensate for the low fertility.

This soil is suited to pasture and to hay crops. Seasonal droughtiness is a management concern. Improved bermudagrass produces moderate yields if properly managed. Controlled grazing and proper applications of lime and fertilizer are needed to obtain optimum production and to minimize the effects of seasonal droughtiness.

This soil is suited to the production of loblolly pine, slash pine, and longleaf pine. This map unit has moderate equipment limitations and a moderate seedling mortality rate. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil.

This soil is suited to urban development. Wetness and seasonal droughtiness are management concerns. Septic tank absorption fields can be mounded to maintain the system above the seasonal high water table. Landscaping with drought-tolerant grasses, shrubs, and trees; applying water on a regular basis; and mulching help to establish lawns and landscaping plants.

The capability subclass is IIIs. The woodland ordination symbol is 11S.

6—Blanton sand, 5 to 8 percent slopes

This very deep, moderately well drained soil is on upland side slopes. Slopes are concave or convex. Individual areas are irregular or elongated in shape. They range from about 3 to 50 acres in size.

Typically, the surface layer is dark grayish brown sand about 9 inches thick. The subsurface layer extends to a depth of 54 inches. In the upper part, it is yellowish brown sand. In the next part, it is light yellowish brown sand. In the lower part, it is very pale brown sand that has brownish yellow mottles. The subsoil extends to a depth of 80 inches. In the upper part, it is yellowish brown sandy clay loam that has strong brown and gray mottles. In the next part, it is light brownish gray sandy clay loam that has strong brown mottles. In the lower part, it is gray sandy clay loam.

In 90 percent of the areas mapped as Blanton sand, 5 to 8 percent slopes, the Blanton soil and similar soils make up 75 to 99 percent of the unit. Dissimilar soils make up the other 1 to 25 percent.

Included in mapping are small areas of Albany and Alpin soils. The excessively drained Alpin soils are in the higher positions. The somewhat poorly drained Albany soils are in the lower positions. Also included are small areas of soils that have a water table at a depth of 30 to 48 inches and soils that have fragments of phosphatic limestone in and above the subsoil.

Important properties of the Blanton soil—

Seasonal high water table: At a depth of 4 to 6 feet from March through August, perched
Permeability: Moderately slow
Available water capacity: Low
Flooding: None

This soil is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, loblolly pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This soil is not suited to cultivated crops. Seasonal droughtiness, slope, a severe hazard of erosion, and low fertility are severe limitations.

This soil is suited to pasture and to hay crops. Improved bermudagrass produces moderate yields if properly managed. Controlled grazing and proper applications of lime and fertilizer are needed to obtain optimum production and to minimize the effects of seasonal droughtiness.

This soil is suited to the production of loblolly pine, slash pine, and longleaf pine. It has moderate equipment limitations and a moderate seedling mortality rate. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil.

This soil is suited to urban development. Wetness, slope, and seasonal droughtiness are management concerns. Septic tank absorption fields can be mounded to maintain the system above the water table. Cutting and filling the more sloping areas helps to overcome the slope. Landscaping with drought-tolerant grasses, shrubs, and trees; applying water on a regular basis; and mulching help to establish lawns and landscaping plants.

The capability subclass is IVs. The woodland ordination symbol is 11S.

7—Kenansville fine sand, 0 to 5 percent slopes, occasionally flooded

This very deep, well drained soil is on the flood plains of rivers and creeks. Individual areas are irregular in shape. They range from 5 to 25 acres in size.

Typically, the surface layer is dark brown fine sand 9 inches thick. The subsurface layer, which extends to a depth of 23 inches, is yellowish brown fine sand. The subsoil extends to a depth of 58 inches. It is dark yellowish brown sandy loam in the upper part and yellowish brown sandy loam in the lower part. The underlying layer, which extends to a depth of 80 inches or more, is light yellowish brown loamy sand that has yellowish brown loamy layers.

In 80 percent of the areas mapped as Kenansville fine sand, 0 to 5 percent slopes, occasionally flooded, the Kenansville soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are Blanton and Ocilla soils. The moderately well drained Blanton soils are in the slightly lower positions. The somewhat poorly drained Ocilla soils are also in the lower positions and have a loamy subsoil within a depth of 40 inches. Also included are small areas of the soils

that have a slope of 5 to 8 percent and small areas of soils that have a loamy subsoil within a depth of 20 inches.

Important properties of the Kenansville soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Rapid
Available water capacity: Moderate
Flooding: Occasional

This soil is in the Mixed Hardwood and Pine ecological community, which has several variations of tree stands. In the early successional stages, pine is present with loblolly pine predominating. As the system matures, hardwoods replace the pines. The natural climax vegetation is thought to be a beech-magnolia-maple association.

Characteristic plant community—

Trees: Blue beech, American holly, eastern hophornbean, flowering dogwood, hawthorns, loblolly pine, slash pine, longleaf pine, mockernut hickory, pignut hickory, southern red oak, southern magnolia, white oak, water oak, and laurel oak
Shrubs: Shining sumac and sparkleberry
Herbaceous plants and vines: Aster, common ragweed, partridgeberry, partridge pea, poison ivy, viola, Virginia creeper, and wild grape
Grasses: Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola

This soil is suited to cultivated crops. The occasional flooding is a management concern. Most of the crops that are adapted to the area can be grown on this soil but require good management and the use of conservation practices, such as contour farming, a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Droughtiness is a management concern. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a medium level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields. The flooding prevents grazing in some years.

This soil is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. The sandy texture somewhat restricts the use of wheeled equipment. This restriction can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by selecting proper species and by scheduling planting for times when favorable weather is predicted. Seedling mortality can also be caused by the flooding. Plant competition can be controlled by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is poorly suited to urban development. The flooding and poor filtration are management concerns. Depending upon the thickness of the subsoil, an expanded absorption field may help to overcome the poor filtration.

The capability subclass is IIIs. The woodland ordination symbol is 11S.

8—Chipley sand, 0 to 5 percent slopes

This very deep, somewhat poorly drained soil is in broad low areas on uplands and on low ridges in areas of flatwoods. Individual areas are irregular in shape. They range from about 20 to 200 acres in size.

Typically, the surface layer is very dark gray sand about 8 inches thick. The underlying material is brown sand in the upper part, pale brown sand in the next part, and light brownish gray sand to a depth of 80 inches or more.

In 80 percent of the areas mapped as Chipley sand, 0 to 5 percent slopes, the Chipley soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Mascotte and Pottsburg soils. These poorly drained soils are in the lower positions and have an organic-stained subsoil.

Important properties of the Chipley soil—

Depth to the seasonal high water table: 2 to 3 feet from December through April
Permeability: Rapid
Available water capacity: Very low or low
Flooding: None

This soil is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages pine, water oak and sweetgum are dominant and the understory is blackberries,

broomsedge, and greenbriers. This community is considered to be in a climax state of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbean, flowering dogwood, hawthorns, laurel oak, laurelcherry, live oak, loblolly pine, longleaf pine, slash pine, pignut hickory, southern magnolia, sweetgum, water oak, post oak, turkey oak, and blackjack oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This soil is poorly suited to cultivated crops. Seasonal wetness and low fertility are management concerns. Irrigation is needed during dry periods. Residue management, including minimum tillage, is needed to preserve moisture during dry periods and to minimize erosion. Lime and fertilizer, which are needed to compensate for the low fertility of the soil, should be applied according to the needs of the crop.

This soil is suited to improved pasture grasses. Improved bermudagrass and bahiagrass produce moderate yields if properly managed. Controlled grazing and proper applications of lime and fertilizer are needed to obtain optimum production.

This soil is suited to the production of slash pine and loblolly pine. Moderate equipment limitations and moderate plant competition are management concerns. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. The equipment limitations can be overcome by harvesting when the soil is moist. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil.

This soil is poorly suited to urban development. The seasonal high water table, poor filtration, and sandy textures are management concerns. Deep drainage can help to lower the seasonal high water table. If this soil is used as a site for septic tanks absorption fields, mounding may be needed.

The capability subclass is IIIs. The woodland ordination symbol is 11S.

9—Foxworth sand, 0 to 5 percent slopes

This very deep, moderately well drained soil is in areas of flatwoods. Individual areas are irregular in shape. They range from about 3 to 75 acres in size.

Typically, the surface layer is dark brown sand about 7 inches thick. The upper part of the substratum extends to a depth of 55 inches. It is yellowish brown and brownish yellow sand. The lower part extends to a depth of 80 inches or more. It is very pale brown sand and white sand.

In 80 percent of the areas mapped as Foxworth sand, 0 to 5 percent slopes, the Foxworth soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Albany soils. These somewhat poorly drained soils have a loamy subsoil below a depth of 40 inches.

Important properties of the Foxworth soil—

Depth to the seasonal high water table: 4 to 6 feet from June through October
Available water capacity: Very low or low
Flooding: None

This soil is in the Longleaf Pine-Turkey Oak Hills ecological community, which has several variations of tree stands. Mature, natural stands of trees have an overstory of scattered longleaf pine. In areas where the pines have been removed, oaks are predominant. Ground cover is scattered, and numerous bare areas are noticeable.

Characteristic plant community—

Trees: Longleaf pine, turkey oak, bluejack oak, slash pine, live oak, post oak, and laurel oak
Herbaceous plants: Aster, blazingstar, brackenfern, butterfly pea, elephantsfoot, grassleaf goldaster, partridge pea, pineland beggarweed, sandhill milkweed, showy crotalaria, and wild indigo
Grasses and grasslike plants: Curtiss' dropseed, hairy panicum, yellow Indiangrass, low panicum, and pineywood dropseed

This soil is poorly suited to cultivated crops. Droughtiness is a management concern. Irrigation is needed during dry periods. Corn, peanuts, and watermelons can be grown on this soil but require intensive management, including such conservation practices as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Wind erosion is a severe hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops.

Droughtiness is a management concern. Deep-rooted plants, such as improved bermudagrass, can be grown if a high level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of slash pine and longleaf pine. Moderate equipment limitations, seedling mortality, and plant competition are management concerns. Using field machinery that is equipped with large, low-pressure tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by harvesting. Seedling mortality caused by droughtiness can be partly overcome by selecting proper species and by scheduling planting to coincide with favorable weather predictions. Plant competition can be controlled by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is moderately suited to urban development. The seasonal high water table and the sandy textures are management concerns. Deep drainage can help to lower the seasonal high water table.

The capability subclass is IIIs. The woodland ordination symbol is 10S.

10—Lowndes sand, 0 to 5 percent slopes

This very deep, well drained soil is on uplands. Individual areas are irregular in shape. They range from 5 to 25 acres in size.

Typically, the surface layer is dark grayish brown sand 4 inches thick. The subsurface layer, which extends to a depth of 33 inches, is yellowish brown loamy sand. The upper subsoil, which extends to a depth of 53 inches, is strong brown sandy loam. The layer between the upper subsoil and the lower subsoil is 5 inches of strong brown loamy sand. The lower subsoil is strong brown sandy clay loam to a depth of 80 inches.

In 80 percent of the areas mapped as Lowndes sand, 0 to 5 percent slopes, the Lowndes soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Norfolk soils that have loamy horizons within a depth of 20 inches.

Important properties of the Lowndes soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the Mixed Hardwood and Pine ecological community, which has several variations of tree stands. In the early successional stages, pine is present with loblolly pine predominating. As the system matures, hardwoods replace the pines. The natural climax vegetation is thought to be a beech-magnolia-maple association.

Characteristic plant community—

Trees: Blue beech, American holly, eastern hophornbean, flowering dogwood, hawthorns, loblolly pine, slash pine, longleaf pine, mockernut hickory, pignut hickory, southern red oak, southern magnolia, white oak, and water oak
Shrubs: Shining sumac and sparkleberry
Herbaceous plants and vines: Aster, common ragweed, partridgeberry, partridge pea, poison ivy, viola, Virginia creeper, and wild grape
Grasses: Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola

This soil is suited to cultivated crops (fig. 3). Most of the crops that are adapted to the area can be grown on this soil but require good management and the use of conservation practices, such as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a medium level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate equipment limitations and moderate seedling mortality are management concerns. Using field machinery that is equipped with large, low-pressure tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Seedling mortality caused by droughtiness can be partly overcome by selecting proper species and by scheduling planting for times when favorable weather is predicted. Plant competition can be controlled by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

Figure 3.—Tobacco growing in an area of Lowndes sand, 0 to 5 percent slopes.

This soil is suited to urban development. It has no significant management concerns.

The capability subclass is IIs. The woodland ordination symbol is 10S.

11—Lowndes sand, 5 to 8 percent slopes

This very deep, well drained soil is on side slopes on uplands. Individual areas are irregular in shape. They range from 5 to 40 acres in size.

Typically, the surface layer is very dark grayish brown sand 4 inches thick. The subsurface layer, which extends to a depth of 33 inches, is yellowish brown loamy sand. The upper subsoil, which extends to a depth of 53 inches, is strong brown fine sandy loam. The layer between the upper subsoil and the lower subsoil is 5 inches of strong brown loamy sand. The lower subsoil is strong brown loam to a depth of 80 inches.

In 80 percent of the areas mapped as Lowndes sand, 5 to 8 percent slopes, the Lowndes soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Valdosta soils, which are sandy to a depth of 80 inches or more.

Important properties of the Lowndes soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the Mixed Hardwood and Pine ecological community, which has several variations of tree stands. In the early successional stages, pine is present with loblolly pine predominating. As the system matures, hardwoods replace the pines. The natural climax vegetation is thought to be a beech-magnolia-maple association.

Characteristic plant community—

Trees: Blue beech, American holly, eastern hophornbean, flowering dogwood, hawthorns, loblolly pine, slash pine, longleaf pine, mockernut hickory, pignut hickory, southern red oak, southern magnolia, white oak, and water oak
Shrubs: Shining sumac and sparkleberry
Herbaceous plants and vines: Aster, common ragweed, partridgeberry, partridge pea, poison ivy, viola, Virginia creeper, and wild grape
Grasses: Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola

This soil is poorly suited to cultivated crops. Slope and seasonal droughtiness are management concerns. Most of the crops that are adapted to the area can be grown on this soil but require good management and the use of conservation practices, such as contour farming, a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a medium level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate equipment limitations and moderate seedling mortality are management concerns. Using field machinery that is equipped with large, low-pressure tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Seedling mortality caused by droughtiness can be partly overcome by selecting proper species and by scheduling planting for times when favorable weather is predicted. Plant competition can be reduced by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is suited to urban development. It has no significant management concerns.

The capability subclass is IIIs. The woodland ordination symbol is 10S.

12—Lowndes and Norfolk soils, 8 to 12 percent slopes

These very deep, well drained soils are on ridges and side slopes on uplands. Individual areas are irregular in shape. They range from 5 to 40 acres in size.

Typically, the Lowndes soil has a surface layer of dark grayish brown sand 4 inches thick. The subsurface layer, which extends to a depth of 33 inches, is yellowish brown loamy fine sand. The upper subsoil is brown fine sandy loam to a depth of 53 inches. The lower subsoil is strong brown sandy clay to a depth of 80 inches.

Typically, the Norfolk soil has a surface layer of dark yellowish brown loamy fine sand 6 inches thick. In sequence downward, the upper part of the subsoil is 5 inches of strong brown sandy loam, 14 inches of strong brown sandy clay loam, and 19 inches of strong brown sandy clay loam. The lower part of the subsoil extends to a depth of 80 inches or more. It is light yellowish brown sandy clay loam that has mottles.

Lowndes and similar soils make up about 40 percent of the map unit. Norfolk and similar soils make up about 30 percent. Each soil is not in every mapped area, and the relative proportion of each soil varies. Included in mapping are small areas of Valdosta and Wampee soils. Valdosta soils are sandy to a depth of 80 inches or more. Wampee soils are in the slightly lower positions and are somewhat poorly drained.

In 80 percent of the areas mapped as Lowndes and Norfolk soils, 8 to 12 percent slopes, the Lowndes, Norfolk, and similar soils make up 75 to 99 percent of the unit. Dissimilar soils make up the other 1 to 25 percent.

Important properties of the Lowndes and Norfolk soils—

Depth to the seasonal high water table: Lowndes—more than 6 feet; Norfolk—4 to 6 feet from January through March
Permeability: Moderate
Available water capacity: Medium
Flooding: None

This map unit is in the Mixed Hardwood and Pine ecological community, which has several variations of tree stands. In the early successional stages, pine is present with loblolly pine predominating. As the system matures, hardwoods replace the pines. The

natural climax vegetation is thought to be a beech-magnolia-maple association.

Characteristic plant community—

Trees: Blue beech, American holly, eastern hophornbean, flowering dogwood, hawthorns, slash pine, longleaf pine, loblolly pine, mockernut hickory, pignut hickory, southern red oak, southern magnolia, white oak, and water oak
Shrubs: Shining sumac and sparkleberry
Herbaceous plants and vines: Aster, common ragweed, partridgeberry, partridge pea, poison ivy, viola, Virginia creeper, and wild grape
Grasses: Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola

This map unit is not suited to cultivated crops. The slope, droughtiness, and rapid leaching of plant nutrients are severe limitations.

This map unit is suited to pasture and to hay crops. In the steeper areas, the slope increases the hazard of erosion and reduces potential yields. Pasture and hay crops are preferred over row crops because of the hazard of erosion. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a medium level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor, to obtain maximum yields, and to reduce the hazard of erosion.

This map unit is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. Using field machinery that is equipped with large, low-pressure tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Seedling mortality caused by droughtiness can be partly overcome by selecting proper species and by scheduling planting for times when favorable weather is predicted. Plant competition can be reduced by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred. Establishing logging trails on the contour and planting on the contour reduce the hazard of erosion during harvesting.

This map unit is moderately suited to urban development. Slow percolation, wetness, and slope are management concerns. The use of mounds for onsite sewage disposal helps to overcome the wetness and slow percolation. Cutting and filling help to overcome the slope.

The capability subclass is IVs in areas of the Lowndes soil and IIIe in areas of the Norfolk soil. The woodland ordination symbol is 10S in areas of the Lowndes soil and 8A in areas of the Norfolk soil.

13—Mascotte sand

This very deep, poorly drained soil is in areas of flatwoods on low stream terraces and in areas bordering swamps and depressions. Individual areas are irregular in shape. They range from 10 to 200 acres in size. Slopes range from 0 to 2 percent.

Typically, the surface layer is black sand about 5 inches thick. The subsurface layer is light brownish gray sand about 8 inches thick. The upper subsoil is stained with organic matter. It is 2 inches of very dark brown loamy sand and 2 inches of dark reddish brown loamy sand. The transitional layer between the upper subsoil and the lower subsoil is 19 inches of light gray sand. The lower subsoil is gray fine sandy loam. The underlying material is reddish gray loamy sand that extends to a depth of more than 80 inches.

In 90 percent of the areas mapped as Mascotte sand, the Mascotte soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Pottsburg and Sapelo soils in the slightly higher positions. Pottsburg soils do not have a loamy subsoil.

Important properties of the Mascotte soil—

Depth to the seasonal high water table: $^1/_2$ foot to $1^1/_2$ feet from March through September
Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the North Florida Flatwoods ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. Areas of this community typically have a moderate to dense stand of pine trees and an understory of saw palmetto and grasses. The areas that originally supported longleaf pine have been replanted to slash pine.

Characteristic plant community—

Trees: Live oak, slash pine, longleaf pine, and loblolly pine
Shrubs: Ground blueberry, gallberry, saw palmetto, shining sumac, tarflower, and wax-myrtle
Herbaceous plants and vines: Cat greenbrier, common greenbrier, brackenfern, creeping beggarweed,

deertongue, dogfennel, gayfeather, greenbrier, and milkwort

Grasses and grasslike plants: Low panicum, broomsedge bluestem, yellow Indiangrass, lopsided Indiangrass, low panicum, pineland threeawn, and sedges

This soil is not suited to cultivated crops. Wetness and low natural fertility are severe limitations. Adapted crops and very intensive management practices are needed. In areas that have a good water-control system, this soil is suited to many crops if soil improving measures are applied. A water-control system is needed to remove excess surface water during wet periods and to provide water for subsurface irrigation during dry periods. Row crops should be rotated with close-growing, soil improving cover crops. Soil improving cover crops and residue from other crops should be used to maintain the content of organic matter and to help control erosion. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be applied according to the needs of the crops.

This soil is suited to pasture and to hay crops. Improved bermudagrass, improved bahiagrass, and clover are well adapted to this soil and grow well if properly managed. A water-control system is needed to remove excess surface water during heavy rains. Regular applications of fertilizer are needed to obtain high yields. Controlled grazing helps to maintain plant vigor.

This soil is suited to the production of slash pine and loblolly pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. Bedding of rows helps to overcome the limitations caused by excessive wetness. Using field machinery that is equipped with low-pressure tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Plant competition can be controlled by site preparation, such as chopping with a drum chopper. Conventional methods of harvesting timber generally can be used but may be limited during rainy periods. A logging system that leaves most of the biomass on the surface is preferred.

This soil is poorly suited to urban development. The seasonal high water table, poor filtration, and sandy textures are management concerns. Deep drainage can help to lower the seasonal high water table. If this soil is used as a site for septic tanks absorption fields, mounding is needed.

The capability subclass is IIIw. The woodland ordination symbol is 11W.

14—Pottsburg sand

This very deep, poorly drained soil is in areas of flatwoods. Individual areas are irregular in shape. They range from about 10 to 40 acres in size. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray sand about 7 inches thick. The upper part of the subsurface layer extends to a depth of 19 inches. It is dark grayish brown sand. The lower part, which extends to a depth of 51 inches, is light brownish gray sand. The upper part of the subsoil extends to a depth of 65 inches. It is grayish brown loamy sand. The lower part is dark reddish brown sand to a depth of 80 inches or more.

In 90 percent of the areas mapped as Pottsburg sand, the Pottsburg soil and similar soils make up 87 to 99 percent of the unit. Dissimilar soils make up the other 1 to 13 percent. Included in mapping are small areas of Albany, Mascotte, and Plummer soils. Albany soils are in the slightly higher positions. Mascotte soils have loamy subsoil horizons below the stained subsoil. Plummer soils are in the slightly lower positions and have a loamy subsoil.

Important properties of the Pottsburg soil—

Depth to the seasonal high water table: $^1/_2$ to 1 foot from March through September
Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the North Florida Flatwoods ecological community (fig. 4). The type and amount of vegetation in this ecological community vary depending on the successional stage. The areas that originally supported longleaf pine have been replanted to slash pine. This community typically has a moderate to dense stand of pine trees and an understory of saw palmetto and grasses.

Characteristic plant community—

Trees: Live oak, slash pine, longleaf pine, loblolly pine, and water oak
Shrubs: Ground blueberry, gallberry, saw palmetto, shining sumac, tarflower, and wax-myrtle
Herbaceous plants and vines: Cat greenbrier, common greenbrier, brackenfern, creeping beggarweed, deertongue, dogfennel, gayfeather, milkwort, and blackberry
Grasses and grasslike plants: Low panicum, broomsedge bluestem, yellow Indiangrass, lopsided Indiangrass, pineland threeawn, Chalky bluestem, and sedges

Figure 4.—An area of the North Florida Flatwoods ecological community on Pottsburg sand in the foreground. All of the pine trees have been removed from this location. Pamlico muck, depressional, which is a very poorly drained soil, is in the background.

This soil is not suited to cultivated crops. Wetness and low natural fertility are severe limitations. Adapted crops and very intensive management practices are needed. In areas that have a good water-control system, this soil is suited to many crops if soil improving measures are applied. A water-control system is needed to remove excess surface water during wet periods and to provide water for subsurface irrigation during dry periods. Row crops should be rotated with close-growing, soil improving cover crops. Soil improving cover crops and residue from other crops should be used to maintain the content of organic matter and to help control wind erosion. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be applied according to the needs of the crops.

This soil is suited to improved pasture grasses. Improved bermudagrass and clover are well adapted to this soil and grow well if properly managed. A water-control system is needed to remove excess surface water during heavy rains. Regular applications of fertilizer are needed to obtain high yields. Controlled grazing helps to maintain plant vigor.

This soil is suited to the production of slash pine and loblolly pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Plant competition can be controlled by site

preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is poorly suited to urban development. The seasonal high water table, poor filtration, and sandy textures are management concerns. Deep drainage can help to lower the seasonal high water table. If this soil is used as a site for septic tanks absorption fields, mounding is needed.

The capability subclass is IVw. The woodland ordination symbol is 10W.

15—Valdosta sand, 0 to 5 percent slopes

This very deep, somewhat excessively drained soil is on the uplands. Individual areas are irregular in shape. They range from about 15 to 300 acres in size.

Typically, the surface layer is dark brown sand about 9 inches thick. The upper part of the subsoil extends to a depth of 23 inches. It is yellowish brown loamy sand. The lower part, which extends to a depth of 58 inches, is dark yellowish brown grading to yellowish brown loamy sand. The underlying material to a depth of 80 inches or more is light yellowish brown loamy sand and contains thin strata of yellowish brown sandy loam.

In 95 percent of the areas mapped as Valdosta sand, 0 to 5 percent slopes, the Valdosta soil and similar soils make up 79 to 99 percent of the unit. Dissimilar soils make up the other 1 to 21 percent. Included in mapping are small areas of Blanton and Lowndes soils. Blanton soils have a loamy subsoil below a depth of 40 inches. Lowndes soils have a loamy horizon between depths of 20 and 40 inches.

Important properties of the Valdosta soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Rapid
Available water capacity: Low
Flooding: None

This soil is in the Mixed Hardwood and Pine ecological community.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, longleaf pine, loblolly pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This soil is poorly suited to cultivated crops. The sandy textures are a management concern. Corn, peanuts, and watermelons can be grown on this soil but require moderately intensive management, including such conservation practices as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a severe hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a high level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate seedling mortality is a management concern. The sandy texture restricts the use of wheeled equipment. This restriction can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by increasing the rate and depth of tree planting and by mulching with the residual biomass that is left after harvesting. A logging system that leaves most of the biomass on the surface is preferred.

This soil is suited to urban development. The sandy textures are a management concern. The use of drought-tolerant plants and grasses helps to overcome this problem.

The capability subclass is IIIs. The woodland ordination symbol is 10S.

16—Valdosta sand, 5 to 8 percent slopes

This very deep, excessively drained soil is on uplands. Individual areas are irregular in shape. They range from about 15 to 300 acres in size.

Typically, the surface layer is dark brown sand about 9 inches thick. The subsoil is loamy sand. The

upper part of the subsoil extends to a depth of 23 inches and is yellowish brown. The lower part extends to a depth of 58 inches and is dark yellowish brown grading to yellowish brown. The underlying material to a depth of 80 inches or more is light yellowish brown loamy sand that has thin layers of yellowish brown sandy loam.

In 80 percent of the areas mapped as Valdosta sand, 5 to 8 percent slopes, the Valdosta soil and similar soils make up 79 to 99 percent of the unit. Dissimilar soils make up the other 1 to 21 percent. Included in mapping are small areas of Lowndes soils that have a loamy horizon between depths of 20 and 40 inches.

Important properties of the Valdosta soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Rapid
Available water capacity: Low
Flooding: None

This soil is in the Mixed Hardwood and Pine ecological community.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, longleaf pine, loblolly pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This soil is not suited to cultivated crops. The sandy textures are a management concern. Corn, peanuts, and watermelons can be grown on this soil but require moderately intensive management, including such conservation practices as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a severe hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a high level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate seedling mortality is a management concern. The sandy texture restricts the use of wheeled equipment. This restriction can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by increasing the rate and depth of tree planting and by mulching with the residual biomass that is left after harvesting. A logging system that leaves most of the biomass on the surface is preferred.

This soil is suited to urban development. The sandy textures are a management concern. The use of drought-tolerant plants and grasses helps to overcome this problem.

The capability subclass is IVs. The woodland ordination symbol is 10S.

17—Wadley sand, 5 to 12 percent slopes

This very deep, well drained soil is on uplands. Individual areas are irregular in shape. They range from about 15 to 40 acres in size.

Typically, the surface layer is dark grayish brown sand about 3 inches thick. Next is 3 inches of dark brown sand. The subsurface layer extends to a depth of 70 inches. It is dark yellowish brown sand in the upper part, yellowish brown loamy sand in the next part, and very pale brown sand in the lower part. The underlying material is reddish yellow sandy clay loam to a depth of 80 inches or more.

In 80 percent of the areas mapped as Wadley sand, 5 to 12 percent slopes, the Wadley soil and similar soils make up 76 to 98 percent of the unit. Dissimilar soils make up the other 2 to 24 percent. Included in mapping are small areas of Foxworth soils, which are in the lower positions, have a seasonal high water table, and do not have a loamy subsoil.

Important properties of the Wadley soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary

depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, bluejack oak, laurelcherry, turkey oak, live oak, longleaf pine, loblolly pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This soil is not suited to cultivated crops. The sandy textures and the slope are management concerns.

This soil is poorly suited to pasture and to hay crops. Deep-rooted plants, such as coastal bermudagrass and bahiagrass, can be grown if a very high level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Grazing should be strictly controlled to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. The sandy texture restricts the use of wheeled equipment. This restriction can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by increasing the rate and depth of tree planting and by mulching with the residual biomass that is left after harvesting. Plant competition can be reduced by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is suited to urban development. The sandy textures and the slope are management concerns. The use of drought-tolerant plants and grasses helps to overcome the sandy texture. Cutting and filling help to overcome the slope.

The capability subclass is VIs. The woodland ordination symbol is 11S.

18—Wadley sand, 0 to 5 percent slopes

This very deep, well drained soil is on uplands. Individual areas are irregular in shape. They range from about 15 to 50 acres in size.

Typically, the surface layer is dark grayish brown sand about 3 inches thick. Next is 3 inches of dark brown sand. The subsurface layer, which extends to a depth of 50 inches, is light yellowish brown grading to very pale brown sand. The next layer, which extends to a depth of 62 inches, is very pale brown sand that has thin layers of yellowish brown loamy sand. The subsoil, which extends to a depth of 80 inches or more, is yellowish brown grading to strong brown sandy clay loam.

In 90 percent of the areas mapped as Wadley sand, 0 to 5 percent slopes, the Wadley soil and similar soils make up 75 to 99 percent of the unit. Dissimilar soils make up the other 1 to 25 percent. Included in mapping are some small areas of Alpin and Blanton soils. Alpin soils do not have continuous subsoil horizons. Blanton soils are in the lower positions and have a seasonal high water table within a depth of 4 feet.

Important properties of the Wadley soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the Longleaf Pine-Turkey Oak Hills ecological community, which has several variations of tree stands. Mature, natural stands of trees have an overstory of scattered longleaf pine. In areas where the pines have been removed, oaks are predominant. Ground cover is scattered, and numerous bare areas are noticeable.

Characteristic plant community—

Trees: Longleaf pine, slash pine, loblolly pine, turkey oak, bluejack oak, and live oak
Herbaceous plants: Aster, blazingstar, brackenfern, butterfly pea, elephantsfoot, grassleaf goldaster, partridge pea, pineland beggarweed, sandhill milkweed, showy crotalaria, and wild indigo
Grasses and grasslike plants: Curtiss' dropseed, hairy panicum, yellow Indiangrass, low panicum, and pineywood dropseed

This soil is poorly suited to cultivated crops. The course texture of the surface layer is a management concern. Plant nutrients leach rapidly. Corn, peanuts, and watermelons can be grown on this soil but require intensive management, including such conservation practices as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a severe hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a very high level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of slash pine and longleaf pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. The sandy texture restricts the use of wheeled equipment. This restriction can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by increasing the rate and depth of tree planting and by mulching with the residual biomass that is left after harvesting. Plant competition can be controlled by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is suited to urban development. It has no significant management concerns.

The capability subclass is IIIs. The woodland ordination symbol is 11S.

19—Valdosta-Lowndes complex, 12 to 20 percent slopes

These very deep, well drained soils are on ridges and side slopes on uplands. Individual areas are irregular in shape. They range from about 5 to 20 acres in size. The individual components of this complex occur as areas that are too intermingled and too small to separate at the scale selected for mapping.

Typically, the Valdosta soil has a surface layer of dark brown sand about 9 inches thick. The subsoil is loamy sand. The upper part of the subsoil extends to a depth of 23 inches and is yellowish brown. The lower part extends to a depth of 58 inches and is dark yellowish brown grading to yellowish brown. The underlying material to a depth of 80 inches or more is light yellowish brown loamy sand that has thin layers of yellowish brown sandy loam.

Typically, the Lowndes soil has a surface layer of dark grayish brown loamy fine sand 4 inches thick. The subsurface layer, which extends to a depth of 33 inches, is yellowish brown loamy sand. The upper subsoil is brown sandy loam to a depth of 53 inches. The lower subsoil is strong brown sandy clay to a depth of 80 inches.

Mapped areas of this unit are about 67 percent Valdosta and similar soils and 28 percent Lowndes and similar soils. Dissimilar soils make up the other 5 percent of the map unit. The components of this complex occur in a regularly repeating pattern. The Valdosta soils are on summits and footslopes. The Lowndes soils are on shoulder slopes and backslopes.

In 80 percent of the areas mapped as Valdosta-Lowndes complex, 12 to 20 percent slopes, the Valdosta, Lowndes, and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Blanton and Wampee soils. Blanton soils have a loamy subsoil below a depth of 40 inches. Wampee soils are in the lower positions and are somewhat poorly drained.

Important properties of the Valdosta and Lowndes soils—

Depth to the seasonal high water table: More than 6 feet
Permeability: Valdosta—rapid; Lowndes—moderate
Available water capacity: Low
Flooding: None

This map unit is in the Mixed Hardwood and Pine ecological community, which has several variations of tree stands. In the early successional stages, pine is present with loblolly pine predominating. As the system matures, hardwoods replace the pines. The natural climax vegetation is thought to be a beech-magnolia-maple association.

Characteristic plant community—

Trees: Blue beech, American holly, eastern hophornbean, flowering dogwood, hawthorns, slash pine, longleaf pine, loblolly pine, mockernut hickory, pignut hickory, southern red oak, southern magnolia, white oak, and water oak
Shrubs: Shining sumac and sparkleberry
Herbaceous plants and vines: Aster, common ragweed, partridgeberry, partridge pea, poison ivy, viola, Virginia creeper, and wild grape
Grasses: Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola

This map unit is not suited to cultivated crops or pasture. The slope, erodibility, droughtiness, and rapid leaching of plant nutrients are management concerns.

This map unit is poorly suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate seedling mortality and moderate equipment limitations are management concerns. The sandy texture of the surface layer, the slope, and the hazard of erosion somewhat restrict the use of wheeled equipment. These restrictions can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by selecting proper species and by scheduling planting for times when favorable weather is predicted. Plant competition can be reduced by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred. Establishing logging trails on the contour and planting on the contour reduce the hazard of erosion during harvesting.

This map unit is not suited to urban development. Slope is a severe limitation.

The capability subclass is VIIe. The woodland ordination symbol is 10S.

20—Pamlico muck, depressional

This very deep, very poorly drained soil is in swamps and depressions. Individual areas are irregular in shape. They range from about 10 to 75 acres in size.

Typically, the surface layer is dark brown muck over black muck and is about 25 inches thick. The underlying layers are sand and loamy fine sand to a depth of 80 inches. The upper part of the underlying layers is grayish brown, and the lower part is very dark gray.

In 95 percent of the areas mapped as Pamlico muck, depressional, the Pamlico soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Mascotte, Pelham, Plummer, and Pottsburg soils. Mascotte and Pottsburg soils have an organic-stained subsoil. Also, Mascotte soils have a loamy subsoil. Pelham and Plummer soils have sandy surface and subsurface layers and a loamy subsoil.

Important properties of the Pamlico soil—

Seasonal high water table: At the surface to a depth of 1 foot from December through May; ponded for long periods following high amounts of rainfall
Permeability: Moderate
Available water capacity: High
Flooding: None

This soil is in the Shrub Bogs-Bay Swamps ecological community. This community is dominated by evergreen vegetation. Bay swamps are forested wetlands and are considered a climax community. Shrub bogs are in the earlier stages of plant succession.

Characteristic plant community—

Trees: Blackgum, buckwheat tree, loblolly bay, pond pine, redbay, sweetbay, bald cypress, and water tupelo
Shrubs: Black titi, doghobble, fetterbush, large gallberry, myrtle-leaved holly, summersweet ciethra, and titi
Herbaceous plants and vines: Greenbrier and spaghnum moss

This soil is not suited to cultivated crops, pasture, production of pine trees, or urban development. Wetness, ponding, and thick layers of soft organic materials are severe limitations. Most areas of this soil are used for wetland wildlife habitat.

The capability subclass is VIIw. The woodland ordination symbol is 4W.

21—Plummer and Surrency soils, depressional

These very deep, very poorly drained soils are in swamps and depressions. Individual areas are irregular in shape. They range from about 10 to 75 acres in size.

Typically, the Plummer soil has a surface layer of very dark gray sand about 9 inches thick. The subsurface layer is sand. The upper part of the subsurface layer extends to a depth of 36 inches and is grayish brown grading to light brownish gray. The lower part extends to a depth of 52 inches and is light gray. The subsoil extends to a depth of 80 inches or more. It is light gray sandy loam grading to sandy clay loam.

Typically, the Surrency soil has a layer of undecomposed litter, consisting mostly of roots and leaves, on the surface. Below this to a depth of 10 inches is black mucky fine sand. The upper part of the subsurface layer extends to a depth of 22 inches. It is light gray sand. The lower part, which extends to a depth of 24 inches, is grayish brown loamy sand. The subsoil to a depth of 80 inches or more is dark gray fine sandy loam and dark gray loamy sand.

Mapped areas of this unit are 50 percent Plummer

and similar soils and 33 percent Surrency and similar soils. Each of the soils is not in every mapped area; the relative proportion of each soil varies.

In 95 percent of the areas mapped as Plummer and Surrency soils, depressional, the Plummer, Surrency, and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Mascotte and Pottsburg soils that have organic-stained subsoil horizons. Also, Pottsburg soils do not have loamy subsoil horizons.

Important properties of the Plummer and Surrency soils—

Seasonal high water table: Ponded for long periods following high amounts of rainfall
Permeability: Moderate
Available water capacity: High
Flooding: None

This map unit is in the Shrub Bogs-Bay Swamps ecological community. This community is dominated by evergreen vegetation. Bay swamps are forested wetlands and are considered a climax community. Shrub bogs are in the earlier stages of plant succession.

Characteristic plant community—

Trees: Blackgum, buckwheat tree, loblolly bay, pond pine, redbay, slash pine, and sweetbay
Shrubs: Black titi, doghobble, fetterbush, large gallberry, myrtle-leaved holly, summersweet ciethra, and titi
Herbaceous plants and vines: Greenbrier and spaghnum moss

This map unit is not suited to cultivated crops, pasture, production of pine trees, or urban development. Wetness, ponding, and thick layers of soft organic materials are severe limitations. Most areas of this map unit are used for wetland wildlife habitat.

The capability subclass is VIIw in areas of the Plummer soil and VIw in areas of the Surrency soil. The woodland ordination symbol is 7W in areas of the Plummer soil and 10W in areas of the Surrency soil.

22—Alpin fine sand, 0 to 5 percent slopes, occasionally flooded

This very deep, excessively drained soil is on river terraces and creek terraces. Individual areas are irregular in shape. They range from about 20 to 100 acres in size.

Typically, the surface layer is dark grayish brown fine sand about 3 inches thick. The upper part of the subsurface layer, to a depth of 15 inches, is light yellowish brown fine sand. The next part, to a depth of 50 inches, is very pale brown grading to yellow fine sand. The lower part, to a depth of 72 inches, is very pale brown sand grading to white sand that has thin layers of very pale brown loamy sand.

In 95 percent of the areas mapped as Alpin fine sand, 0 to 5 percent slopes, occasionally flooded, the Alpin soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Blanton soils that are in the lower positions, have a seasonal high water table, and have a loamy subsoil.

Important properties of the Alpin soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Rapid
Available water capacity: Low
Flooding: Occasional

This soil is in the Longleaf Pine-Turkey Oak Hills ecological community, which has several variations of tree stands. Mature, natural stands of trees have an overstory of scattered longleaf pine. In areas where the pines have been removed, oaks are predominant. Ground cover is scattered, and numerous bare areas are noticeable.

Characteristic plant community—

Trees: Longleaf pine, loblolly pine, slash pine, turkey oak, bluejack oak, and post oak
Herbaceous plants: Aster, blazingstar, brackenfern, butterfly pea, elephantsfoot, grassleaf goldaster, partridge pea, pineland beggarweed, sandhill milkweed, showy crotalaria, and wild indigo
Grasses and grasslike plants: Curtiss' dropseed, hairy panicum, yellow Indiangrass, low panicum, and pineywood dropseed

This soil is poorly suited to cultivated crops. The coarse texture prevents the soil from retaining sufficient moisture during the dry periods. The occasional flooding is a management concern. Plant nutrients leach rapidly. Corn, peanuts, and watermelons can be grown on this soil but require intensive management, including such conservation practices as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a severe hazard if the surface layer is unprotected. Planting cover crops helps to minimize this hazard.

This soil is suited to pasture and to hay crops. Seasonal droughtiness is a management concern. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a high level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields. Regular applications of fertilizer and lime are needed.

This soil is suited to the production of slash pine, longleaf pine, and sand pine. Moderate equipment limitations and seedling mortality are management concerns. The equipment limitations can be overcome by harvesting when the soil is moist. Seedling mortality can be partly offset by increasing the rate and depth of tree planting and by mulching with the residual biomass that is left after harvesting. A logging system that leaves most of the biomass on the surface is preferred.

This soil is not suited to urban development. The flooding is a severe hazard.

The capability subclass is IVs. The woodland ordination symbol is 8S.

23—Blanton loamy sand, 0 to 5 percent slopes

This very deep, moderately well drained soil is in broad low areas on uplands. Individual areas are irregular in shape. They range from about 3 to 40 acres in size.

Typically, the surface layer is very dark grayish brown loamy sand about 6 inches thick. The subsurface layer, which extends to a depth of 56 inches, is loamy sand. It is dark brown grading to yellowish brown, brownish yellow, and yellow. The upper part of the subsoil extends to a depth of 59 inches. It is very pale brown sandy clay loam. The lower part to a depth of 80 inches is sandy clay loam that is mottled in shades of gray, yellow, and brown.

In 80 percent of the areas mapped as Blanton loamy sand, 0 to 5 percent slopes, the Blanton soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Kenansville and Valdosta soils. The well drained Kenansville soils do not have a water table within a depth of 6 feet. Valdosta soils do not have a continuous loamy subsoil.

Important properties of the Blanton soil—

Seasonal high water table: At a depth of 4 to 6 feet from March through August, perched
Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, longleaf pine, loblolly pine, slash pine, pignut hickory, southern magnolia, sweetgum, water oak, turkey oak, southern red oak, and live oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This soil is suited to cultivated crops. Seasonal droughtiness and low fertility are management concerns. Irrigation is needed during dry periods. Residue management, including minimum tillage, is needed to preserve moisture during dry periods and to minimize erosion. Lime and fertilizer should be applied to compensate for the low fertility.

This soil is suited to improved pasture grasses. Improved bermudagrass and bahiagrass produce good yields if properly managed. Controlled grazing and proper applications of lime and fertilizer are needed to obtain optimum production.

This soil is suited to the production of loblolly pine, slash pine, and longleaf pine. Moderate equipment limitations and moderate seedling mortality are management concerns. Site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the

extent of soil compaction, and minimizes the root damage caused by thinning operations. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil.

This soil is suited to urban development. Wetness and seepage are management concerns. Shallow placement of septic tank absorption field lines or the use of a mound system helps to overcome these concerns.

The capability subclass is IIIs. The woodland ordination symbol is 11S.

24—Ocilla loamy fine sand, 0 to 5 percent slopes

This very deep, somewhat poorly drained soil is on low uplands. Individual areas are irregular in shape. They range from about 3 to 75 acres in size.

Typically, the surface layer is dark gray loamy fine sand about 10 inches thick. The subsurface layer, which extends to a depth of 34 inches, is light yellowish brown loamy fine sand grading to pale yellow fine sand grading to brownish yellow loamy fine sand. The upper part of the subsoil extends to a depth of 52 inches. It is mottled dark yellowish brown and red fine sandy loam. The lower part is gray sandy clay to a depth of 80 inches.

In 80 percent of the areas mapped as Ocilla loamy fine sand, 0 to 5 percent slopes, the Ocilla soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Blanton and Pelham soils. Blanton soils are in the slightly higher landscape positions and are better drained than the Ocilla soil. Pelham soils are in the slightly lower positions and are poorly drained.

Important properties of the Ocilla soil—

Depth to the seasonal high water table: 1 foot to $2^1/_2$ feet from December through April
Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, loblolly pine, longleaf pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge bluestem

This soil is suited to cultivated crops. Seasonal wetness and low fertility are management concerns. Irrigation is needed during dry periods. Residue management, including minimum tillage, is needed to preserve moisture during dry periods and to minimize erosion. Lime and fertilizer, which are needed to compensate for the low fertility of the soil, should be applied according to the needs of the crop.

This soil is suited to improved pasture grasses. Improved bermudagrass and bahiagrass produce moderate yields if properly managed. Controlled grazing and proper applications of lime and fertilizer are needed to obtain optimum production.

This soil is suited to the production of loblolly pine, slash pine, and longleaf pine. Equipment limitations, seedling mortality, and plant competition are management concerns. Site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil.

This soil is poorly suited to urban development. The seasonal high water table and the sandy textures are management concerns. Deep drainage can help to lower the seasonal high water table. The use of a mound system for onsite sewage disposal helps to overcome the seasonal high water table.

The capability subclass is IIIw. The woodland ordination symbol is 8W.

25—Wampee-Blanton complex, 8 to 12 percent slopes

These very deep, somewhat poorly drained and moderately well drained soils are on side slopes on uplands. Individual areas are irregular in shape. They range from about 5 to 40 acres in size. The individual components of this complex occur as areas that are too intermingled and too small to separate at the scale selected for mapping.

Typically, the Wampee soil has a surface layer of dark gray loamy sand about 6 inches thick. The subsurface layer, which extends to a depth of 26 inches, is brown grading to light brownish gray loamy sand. The subsoil, which extends to a depth of 51 inches, is light brownish gray gravelly sandy clay loam. The substratum is pale yellow sandy clay to a depth of 80 inches.

Typically, the Blanton soil has a surface layer of dark grayish brown sand about 9 inches thick. The subsurface layer, which extends to a depth of 54 inches, is yellowish brown grading to very pale brown sand. The upper part of the subsoil extends to a depth of 63 inches. It is yellowish brown sandy clay loam. The lower part to a depth of 80 inches is light brownish gray or gray sandy clay loam. The subsoil has brown and gray mottles.

The components of this complex occur in a regularly repeating pattern. The Wampee soils are on shoulder slopes and backslopes. The Blanton soils are on summits and footslopes.

In 80 percent of the areas mapped as Wampee-Blanton complex, 8 to 12 percent slopes, the Wampee, Blanton, and similar soils make up 75 to 99 percent of the unit. Dissimilar soils make up the other 1 to 25 percent. Included in mapping are small areas of Albany, Mascotte, and Plummer soils. Albany soils have a loamy subsoil below a depth of 40 inches. Mascotte soils have organic-stained subsoil horizons. Plummer soils are in the slightly lower positions and are poorly drained.

Important properties of the Wampee and Blanton soils—

Depth to the seasonal high water table: Wampee—1 to 3 feet from June through December; Blanton—4 to 6 feet from March through August
Permeability: Blanton—moderate; Wampee—moderately slow
Available water capacity: Low
Flooding: None

This map unit is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, loblolly pine, longleaf pine, slash pine, pignut hickory, southern magnolia, sweetgum, water oak, and red maple
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge bluestem

This map unit is poorly suited to cultivated crops. Seasonal wetness, slope, erodibility, and low fertility are management concerns. Residue management, including minimum tillage, is needed to preserve moisture during dry periods and to minimize erosion. Lime and fertilizer, which are needed to compensate for the low fertility of the soil, should be applied according to the needs of the crop. Row crops and close growing crops should be planted on the contour in alternating strips. The establishment of improved pasture is preferred due to the highly intensive management required for the production of row crops.

This map unit is suited to improved pasture grasses. Improved bermudagrass and bahiagrass produce moderate yields if properly managed. Controlled grazing and proper applications of lime and fertilizer are needed to obtain optimum production.

This map unit is suited to the production of loblolly pine, slash pine, and longleaf pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. Site preparation, such as harrowing and bedding, helps establish seedlings, reduces the

seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil.

This map unit is poorly suited to urban development. Wetness, slow percolation, slope, and seepage are management concerns. The use of a mound system for onsite sewage disposal helps to overcome the wetness, slow percolation, and seepage. Cutting and filling can help to minimize the slope in some areas.

The capability subclass is VIs in areas of the Wampee soil and IVs in areas of the Blanton soil. The woodland ordination symbol is 11W in areas of the Wampee soil and 11S in areas of the Blanton soil.

26—Mascotte and Plummer soils, occasionally flooded

These very deep, poorly drained soils are in drainageways in areas of flatwoods and in areas bordering swamps and depressions. Individual areas are elongated in shape. They range from about 5 to 40 acres in size. Slopes are less than 1 percent.

Typically, the Mascotte soil has a surface layer of very dark gray sand about 5 inches thick. The subsurface layer is grayish brown sand about 7 inches thick. The upper part of the upper subsoil is stained with organic matter. In sequence downward, the upper subsoil is 2 inches of black sand, 6 inches of very dark grayish brown sand, and 8 inches of dark reddish brown sand. The transitional layer between the upper subsoil and the lower subsoil is 7 inches of brown loamy sand. The upper part of the lower subsoil is 3 inches of light gray sandy loam. Below this is 7 inches of light gray sandy clay loam, which grades to sandy loam to a depth of more than 80 inches.

Typically, the Plummer soil has a surface layer of very dark gray sand about 9 inches thick. The subsurface layer is sand. It is grayish brown grading to light brownish gray to a depth of 36 inches. Below this it is light gray to a depth of 52 inches. The subsoil extends to a depth of 80 inches or more. It is light gray sandy loam grading to sandy clay loam.

Mapped areas of this unit are about 53 percent Mascotte and similar soils and 36 percent Plummer and similar soils. Each of the soils is not in every mapped area; the relative proportion of each soil varies.

In 90 percent of the areas mapped as Mascotte and Plummer soils, occasionally flooded, the Mascotte, Plummer, and similar soils make up 85 to 99 percent of the unit. Dissimilar soils make up the other 1 to 15 percent. Included in mapping are small areas of Stockade soils, which do not have organic-stained subsoil layers and do have a loamy subsoil within a depth of 20 inches.

Important properties of the Mascotte and Plummer soils—

Depth to the seasonal high water table: 1 foot from December through September
Permeability: Moderate
Available water capacity: Low
Flooding: Occasional

This map unit is in the North Florida Flatwoods ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. This community typically has a moderate to dense stand of pine trees and an understory of saw palmetto and grasses. The areas that originally supported longleaf pine have been replanted to slash pine.

Characteristic plant community—

Trees: Laurel oak, longleaf pine, slash pine, and water oak
Shrubs: Ground blueberry, gallberry, saw palmetto, shining sumac, tarflower, and wax-myrtle
Herbaceous plants and vines: Cat greenbrier, common greenbrier, brackenfern, creeping beggarweed, deertongue, dogfennel, gayfeather, greenbrier, and milkwort
Grasses and grasslike plants: Low panicum, broomsedge bluestem, yellow Indiangrass, lopsided Indiangrass, low panicum, pineland threeawn, and sedges

This map unit is not suited to cultivated crops, pasture, woodland, sanitary facilities, or urban development. The flooding and wetness are severe limitations.

The capability subclass is Vw in areas of the Mascotte soil and IVw in areas of the Plummer soil. The woodland ordination symbol is 10W in areas of the Mascotte soil and 11W in areas of the Plummer soil.

27—Kenansville loamy sand, 0 to 5 percent slopes

This very deep, well drained soil is on uplands. Individual areas are irregular in shape. They range from 5 to 25 acres in size.

Typically, the surface layer is dark brown loamy sand about 9 inches thick. The subsurface layer, which extends to a depth of 23 inches, is yellowish brown loamy sand. The subsoil, which extends to a depth of 58 inches, is sandy loam. It is dark yellowish brown in the upper part and is yellowish brown in the lower part. The underlying layer is light yellowish brown loamy sand to a depth of 80 inches or more.

In 80 percent of the areas mapped as Kenansville loamy sand, 0 to 5 percent slopes, the Kenansville soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Norfolk soils, which have a loamy subsoil within a depth of 20 inches. Also included are small areas of the soils that have a slope of 5 to 8 percent and small areas of soils that have a water table within a depth of 40 to 72 inches.

Important properties of the Kenansville soil—

Depth to the seasonal high water table: More than 6 feet
Permeability: Moderately rapid
Available water capacity: Low
Flooding: None

This soil is in the Mixed Hardwood and Pine ecological community, which has several variations of tree stands. In the early successional stages, pine is present with loblolly pine predominating. As the system matures, hardwoods replace the pines. The natural climax vegetation is thought to be a beech-magnolia-maple association.

Characteristic plant community—

Trees: Blue beech, American holly, eastern hophornbean, flowering dogwood, hawthorns, loblolly pine, longleaf pine, mockernut hickory, pignut hickory, southern red oak, southern magnolia, white oak, and water oak
Shrubs: Shining sumac and sparkleberry
Herbaceous plants and vines: Aster, common ragweed, partridgeberry, partridge pea, poison ivy, viola, Virginia creeper, and wild grape
Grasses: Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola

This soil is suited to cultivated crops. Droughtiness is a management concern. Most of the crops that are adapted to the area can be grown on this soil but require good management and the use of conservation practices, such as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Droughtiness is a management concern. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a medium level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. The sandy texture somewhat restricts the use of wheeled equipment. This restriction can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by selecting proper species and by scheduling planting for times when favorable weather is predicted. Plant competition can be controlled by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is poorly suited to urban development. The poor filtration and the sandy textures are management concerns. Depending upon the thickness of the subsoil, an expanded absorption field may help to overcome these limitations.

The capability subclass is IIs. The woodland ordination symbol is 8S.

28—Wampee loamy sand, 5 to 8 percent slopes

This very deep, somewhat poorly drained soil is on side slopes on uplands. Individual areas are irregular in shape. They range from about 5 to 40 acres in size.

Typically, the surface layer is dark gray loamy sand about 6 inches thick. The subsurface layer, which extends to a depth of 26 inches, is brown grading to light brownish gray loamy sand. The subsoil, which extends to a depth of 51 inches, is light brownish gray gravelly sandy clay loam. The substratum is pale yellow sandy clay to a depth of 80 inches.

In 80 percent of the areas mapped as Wampee loamy sand, 5 to 8 percent slopes, the Wampee soil and similar soils make up 75 to 99 percent of the unit.

Dissimilar soils make up the other 1 to 25 percent. Included in mapping are small areas of Blanton soils and Albany soils. The seasonal high water table in areas of the Blanton soils is below a depth of 48 inches. Albany soils have a loamy subsoil below a depth of 40 inches.

Important properties of the Wampee soil—

Depth to the seasonal high water table: 1 to 3 feet from June through December
Permeability: Moderately slow
Available water capacity: Low
Flooding: None

This soil is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, red maple, laurel oak, laurelcherry, loblolly pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This soil is suited to cultivated crops. Seasonal wetness, slope, erodibility, and low fertility are management concerns. Residue management, including minimum tillage, is needed to preserve moisture during dry periods and to minimize erosion. Lime and fertilizer, which are needed to compensate for the low fertility of the soil, should be applied according to the needs of the crop. Row crops and close growing crops should be planted on the contour in alternating strips.

This soil is suited to improved pasture grasses. Improved bermudagrass and bahiagrass produce moderate yields if properly managed. Controlled grazing and proper applications of lime and fertilizer are needed to obtain optimum production.

This soil is suited to the production of loblolly pine, slash pine, and longleaf pine. Moderate equipment limitations, a moderate hazard of windthrow, and moderate plant competition are management concerns. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil. Plant competition can be reduced by site preparation, such as chopping with a drum chopper.

This soil is poorly suited to urban development. Wetness, slow percolation, and seepage are management concerns. The use of mounds for onsite sewage disposal helps to minimize these concerns.

The capability subclass is IVs. The woodland ordination symbol is 11W.

29—Bonneau sand, 0 to 5 percent slopes

This very deep, moderately well drained soil is on uplands. Individual areas are irregular in shape. They range from 5 to 25 acres in size.

Typically, the surface layer is dark brown sand about 6 inches thick. The subsurface layer, which extends to a depth of 25 inches, is yellowish brown sand. The upper part of the subsoil extends to a depth of 42 inches. It is yellowish brown grading to very pale brown sandy loam. The lower part to a depth of 80 inches is light brownish gray sandy clay loam grading to sandy clay.

In 80 percent of the areas mapped as Bonneau sand, 0 to 5 percent slopes, the Bonneau soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Norfolk soils, which have a loamy subsoil within a depth of 20 inches. Also included are small areas of the soils that have a slope of 5 to 8 percent and small areas of soils that have a water table at a depth of more than 72 inches.

Important properties of the Bonneau soil—

Depth to the seasonal high water table: $3^1/_2$ to 5 feet from December through March

Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the Mixed Hardwood and Pine ecological community, which has several variations of tree stands. In the early successional stages, pine is present with loblolly pine predominating. As the system matures, hardwoods replace the pines. The natural climax vegetation is thought to be a beech-magnolia-maple association.

Characteristic plant community—

Trees: Blue beech, American holly, eastern hophornbeam, flowering dogwood, hawthorn, longleaf pine, loblolly pine, mockernut hickory, pignut hickory, southern red oak, southern magnolia, white oak, and water oak
Shrubs: Shining sumac and sparkleberry
Herbaceous plants and vines: Aster, common ragweed, partridgeberry, partridge pea, poison ivy, viola, Virginia creeper, and wild grape
Grasses: Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola

This soil is suited to cultivated crops. Droughtiness is a management concern. Most of the crops that are adapted to the area can be grown on this soil but require good management and the use of conservation practices, such as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Droughtiness is a management concern. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a medium level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate equipment limitations and moderate seedling mortality are management concerns. The sandy texture somewhat restricts the use of wheeled equipment. This restriction can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by selecting proper species and by scheduling planting for times when favorable weather is predicted. Plant competition can be controlled by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is suited to urban development. Wetness is a management concern. Shallow placement of septic tank absorption field lines helps to minimize this concern.

The capability subclass is IIs. The woodland ordination symbol is 10S.

31—Wampee-Blanton complex, 12 to 20 percent slopes

These very deep, somewhat poorly drained and moderately well drained soils are on side slopes on uplands. Individual areas are irregular or elongated in shape. They range from about 5 to 25 acres in size. The individual components of this complex occur as areas that are too intermingled and too small to separate at the scale selected for mapping.

Typically, the Wampee soil has a surface layer of dark gray loamy sand about 6 inches thick. The subsurface layer, which extends to a depth of 26 inches, is brown grading to light brownish gray loamy sand. The subsoil, which extends to a depth of 51 inches, is light brownish gray gravelly sandy clay loam. The substratum is pale yellow sandy clay to a depth of 80 inches.

Typically, the Blanton soil has a surface layer of dark grayish brown sand about 9 inches thick. The subsurface layer, which extends to a depth of 54 inches, is yellowish brown grading to very pale brown sand. The upper part of the subsoil extends to a depth of 63 inches. It is yellowish brown sandy clay loam. The lower part to a depth of 80 inches is light brownish gray to gray sandy clay loam. The subsoil has brown and gray mottles.

Mapped areas of this unit are about 40 percent Wampee and similar soils, 27 percent Blanton and similar soils, and 33 percent dissimilar soils. The components of this complex occur in a regularly repeating pattern. The Wampee soils are on shoulder slopes and backslopes. The Blanton soils are on summits and footslopes.

In 80 percent of the areas mapped as Wampee-Blanton complex, 12 to 20 percent slopes, the Wampee, Blanton, and similar soils make up 75 to 99 percent of the unit. Dissimilar soils make up the other 1 to 25 percent. Included in mapping are small areas of Albany soils, which have a seasonal high water table within a depth of 12 inches and are in the lower landscape positions.

Important properties of the Wampee and Blanton soils—

Seasonal high water table: Wampee—at a depth of 1 to 3 feet from June through December, apparent;

Blanton—at a depth of 4 to 6 feet from March through August, perched
Permeability: Blanton—moderately slow; Wampee—moderate
Available water capacity: Low
Flooding: None

This map unit is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, red maple, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, loblolly pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This map unit is not suited to cultivated crops. Seasonal wetness, slope, severe erodibility, and low fertility are management concerns.

This map unit is poorly suited to improved pasture grasses. Slope and erodibility are management concerns. Improved bermudagrass and bahiagrass produce moderate yields if properly managed. Controlled grazing is critical. Proper applications of lime and fertilizer are needed to obtain optimum production. Erosion control practices must be implemented during pasture establishment to obtain maximum yields.

This map unit is suited to the production of loblolly pine, slash pine, and longleaf pine. A moderate hazard of erosion, moderate equipment limitations, moderate seedling mortality, a moderate hazard of windthrow, and moderate plant competition are management concerns. Site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction and erosion, and minimizes the root damage caused by thinning operations. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil.

This map unit is poorly suited to urban development. Wetness, slow percolation, the slope, and seepage are management concerns. The use of mounds for onsite sewage disposal helps to overcome the wetness, slow percolation, and seepage. Cutting and filling can help to minimize the slope in some areas.

The capability subclass is VIs. The woodland ordination symbol is 11W in areas of the Wampee soil and 11S in areas of the Blanton soil.

32—Norfolk loamy fine sand, 2 to 5 percent slopes

This very deep, well drained soil is on uplands. Individual areas are irregular in shape. They range from 5 to 50 acres in size.

Typically, the surface layer is dark yellowish brown loamy fine sand about 6 inches thick. In sequence downward, the upper part of the subsoil is 5 inches of strong brown sandy loam, 14 inches of strong brown sandy clay loam, and 19 inches of strong brown sandy loam. The lower part of the subsoil extends to a depth of 80 inches or more. It is light yellowish brown sandy clay loam that has mottles.

In 90 percent of the areas mapped as Norfolk loamy fine sand, 2 to 5 percent slopes, the Norfolk soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Lowndes, Ocilla, and Valdosta soils. Also included are small areas of the soils that have a slope of 5 to 8 percent. Lowndes soils have sandy subsurface layers at a depth of more than 20 inches. Ocilla soils are in the lower positions and are somewhat poorly drained. Valdosta soils are sandy throughout and have sandy layers in the lower part of the subsoil.

Important properties of the Norfolk soil—

Depth to the seasonal high water table: 4 to 6 feet from January through March
Permeability: Moderate
Available water capacity: Medium
Flooding: None

This soil is in the Mixed Hardwood and Pine ecological community, which has several variations of tree stands. In the early successional stages, pine is present with loblolly pine predominating. As the system matures, hardwoods replace the pines. The natural climax vegetation is thought to be a beech-magnolia-maple association. Most areas are used for cultivated crops or improved pasture.

Characteristic plant community—

Trees: Blue beech, American holly, eastern hophornbeam, flowering dogwood, hawthorn, longleaf pine, slash pine, loblolly pine, mockernut hickory, pignut hickory, southern red oak, southern magnolia, white oak, and water oak
Shrubs: Shining sumac and sparkleberry
Herbaceous plants and vines: Aster, common ragweed, partridgeberry, partridge pea, poison ivy, viola, Virginia creeper, and wild grape
Grasses: Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola

This soil is suited to cultivated crops. Low fertility is a management concern. Most of the crops that are adapted to the area can be grown on this soil but require good management and the use of conservation practices, such as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a medium level of management is applied, but yields are reduced by periodic drought or wetness. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate plant competition is a management concern. Plant competition can be reduced by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is suited to urban development. It has no significant management concerns.

The capability subclass is IIe. The woodland ordination symbol is 8A.

33—Pelham sand

This very deep, poorly drained soil is in wet, lowland positions on uplands and in narrow to broad areas of flatwoods. Individual areas are irregular in shape. They range from about 10 to 40 acres in size. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray sand about 7 inches thick. The subsurface layer, which extends to a depth of 25 inches, is dark gray grading to grayish brown sand. The subsoil extends to a depth of 80 inches or more. It is grayish brown sandy loam grading to gray and dark gray sandy clay loam.

In 80 percent of the areas mapped as Pelham sand, the Pelham soil and similar soils make up 79 to 99 percent of the unit. Dissimilar soils make up the other 1 to 21 percent. Included in mapping are areas of Albany soils that are in the slightly higher positions and are better drained than the Pelham soil.

Important properties of the Pelham soil—

Seasonal high water table: At the surface to a depth of 1 foot from January through April
Permeability: Moderately slow
Available water capacity: Low
Flooding: None

This soil is in the Wetland Hardwood Hammocks ecological community. This community has an evergreen appearance because it is dominated by laurel oak, live oak, and water oak. It supports a luxurious growth of vegetation with a diversity of species. The Swamp Hardwoods Community is commonly found in depressional areas of the Wetland Hardwood Hammocks ecological community.

Characteristic plant community—

Trees: Live oak, laurel oak, redbay, red maple, slash pine, loblolly pine, sweetbay, sweetgum, blackgum, water oak, magnolia, and hawthorns
Shrubs: Witchhazel, saw palmetto, shining sumac, and wax-myrtle
Herbaceous plants and vines: Cinnamon fern, crossvine, poison ivy, royal fern, Spanish moss, Virginia creeper, wild grape, and yellow jessamine
Grasses and grasslike plants: Beaked panicum, eastern gamagrass, longleaf uniola, chalky bluestem, and maidencane

This soil is poorly suited to cultivated crops. Wetness and low natural fertility are management concerns. Adapted crops and very intensive management practices are needed. In areas that have a good water-control system, this soil is suited to some crops if soil improving measures are applied. A water-control system is needed to remove excess surface water during wet periods and to provide water for subsurface irrigation during dry periods. Row crops should be rotated with close-growing, soil improving

cover crops. Soil improving cover crops and residue from other crops should be used to maintain the content of organic matter and to help control wind erosion. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be applied according to the needs of the crops.

This soil is suited to improved pasture grasses. Improved bermudagrass, improved bahiagrass, and clover are well adapted to this soil and grow well if properly managed. A water-control system is needed to remove excess surface water during heavy rains. Regular applications of fertilizer are needed to obtain high yields. Controlled grazing helps to maintain plant vigor.

This soil is suited to the production of slash pine and loblolly pine. Severe equipment limitations, severe seedling mortality, and moderate plant competition are management concerns. Timely scheduling of site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Drainage is needed to remove excess surface water during wet periods. Logging systems that leave residual biomass well distributed over the site help maintain the content of organic matter and the residual fertility of the soil.

This soil is poorly suited to urban development. The seasonal high water table, poor filtration, and sandy textures are management concerns. Deep drainage can help to lower the seasonal high water table. If this soil is used as a site for septic tanks absorption fields, mounding is needed. If the density of housing is moderate to high, community sewage systems are needed to prevent the contamination that seepage causes to ground water supplies.

The capability subclass is Vw. The woodland ordination symbol is 11W.

34—Plummer sand

This very deep, poorly drained soil is in wet lowland positions on uplands and in narrow to broad areas of flatwoods. Individual areas are irregular in shape. They range from about 10 to 40 acres in size. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray sand about 9 inches thick. The subsurface layer is sand. The upper part of the subsurface layer extends to a depth of 36 inches and is grayish brown grading to light brownish gray. The lower part extends to a depth of 52 inches and is light gray. The subsoil to a depth of 80 inches or more is light brownish gray sandy loam grading to light gray sandy clay loam. It has yellowish brown mottles.

In 80 percent of the areas mapped as Plummer sand, the Plummer soil and similar soils make up 79 to 99 percent of the unit. Dissimilar soils make up the other 1 to 21 percent. Included in mapping are areas of Sapelo soils that are in the slightly higher positions and that have organic-stained subsoil horizons.

Important properties of the Plummer soil—

Seasonal high water table: At the surface to a depth of 1 foot from December through July
Permeability: Moderately slow
Available water capacity: Low
Flooding: None

This soil is in the Wetland Hardwood Hammocks ecological community. This community has an evergreen appearance because it is dominated by laurel oak, live oak, and water oak. It supports a luxurious growth of vegetation with a diversity of species. The Swamp Hardwoods Community is commonly found in depressional areas of the Wetland Hardwood Hammocks ecological community.

Characteristic plant community—

Trees: Live oak, laurel oak, redbay, red maple, sweetbay, sweetgum, water oak, magnolia, and hawthorns
Shrubs: Witchhazel, saw palmetto, shining sumac, and wax-myrtle
Herbaceous plants and vines: Cinnamon fern, crossvine, poison ivy, royal fern, Spanish moss, Virginia creeper, wild grape, and yellow jessamine
Grasses and grasslike plants: Beaked panicum, eastern gamagrass, longleaf uniola, chalky bluestem, and maidencane

This soil is poorly suited to cultivated crops. Wetness and low natural fertility are management concerns. Adapted crops and very intensive management practices are needed. In areas that have a good water-control system, this soil is suited to some crops if soil improving measures are applied. A water-control system is needed to remove excess surface water during wet periods and to provide water for subsurface irrigation during dry periods. Row crops should be rotated with close-growing, soil improving cover crops. Soil improving cover crops and residue from other crops should be used to maintain the

content of organic matter and to help control wind erosion. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be applied according to the needs of the crops.

This soil is suited to improved pasture grasses. Improved bermudagrass, improved bahiagrass, and clover are well adapted to this soil and grow well if properly managed. A water-control system is needed to remove excess surface water during heavy rains. Regular applications of fertilizer are needed to obtain high yields. Controlled grazing helps to maintain plant vigor.

The soil is suited to the production of slash pine and loblolly pine. Severe equipment limitations, severe seedling mortality, and moderate plant competition are management concerns. Timely scheduling of site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Drainage is needed to remove excess surface water during wet periods. Logging systems that leave residual biomass well distributed over the site help maintain the content of organic matter and the residual fertility of the soil.

This soil is poorly suited to urban development. The seasonal high water table, poor filtration, and sandy textures are management concerns. Deep drainage can help to lower the seasonal high water table. If this soil is used as a site for septic tanks absorption fields, mounding is needed. If the density of housing is moderate to high, community sewage systems are needed to prevent the contamination that seepage causes to ground water supplies.

The capability subclass is IVw. The woodland ordination symbol is 11W.

35—Wahee fine sandy loam, 0 to 4 percent slopes, occasionally flooded

This very deep, somewhat poorly drained soil is on flood plains along rivers and creeks. It is occasionally flooded for long periods following prolonged, high intensity rains. Individual areas are irregular in shape. They range from 5 to 50 acres in size.

Typically, the surface layer is very dark gray fine sandy loam 5 inches thick. The subsoil, which extends to a depth of 56 inches, is brown grading to gray clay. The underlying layer is gray sandy clay loam to a depth of 80 inches or more.

In 80 percent of the areas mapped as Wahee fine sandy loam, 0 to 4 percent slopes, occasionally flooded, the Wahee soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are some small areas of Eunola and Ocilla soils. Also included are small areas of soils that have a slope of 5 to 8 percent and small areas of soils that have a sandy surface layer that is more than 20 inches thick. Eunola soils are in the slightly higher positions and are better drained than the Wahee soil. Ocilla soils have sandy surface and subsurface layers.

Important properties of the Wahee soil—

Depth to the seasonal high water table: 1/2 foot to 1 1/2 feet from December through March
Permeability: Slow
Available water capacity: Low
Flooding: Occasional

This soil is in the Mixed Hardwood and Pine ecological community, which has several variations of tree stands. In the early successional stages, pine is present with loblolly pine predominating. As the system matures, hardwoods replace the pines. The natural climax vegetation is thought to be a beech-magnolia-maple association.

Characteristic plant community—

Trees: Blue beech, American holly, eastern hophornbean, flowering dogwood, hawthorns, loblolly pine, slash pine, mockernut hickory, pignut hickory, southern red oak, sweetgum, blackgum, southern magnolia, white oak, water oak, willow oak, and swamp chestnut oak
Shrubs: Shining sumac and sparkleberry
Herbaceous plants and vines: Aster, common ragweed, partridgeberry, partridge pea, poison ivy, viola, Virginia creeper, and wild grape
Grasses: Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola

This soil is suited to cultivated crops. Wetness and the occasional flooding are management concerns. Most of the crops that are adapted to the area can be grown on this soil but require good management and the use of conservation practices, such as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty

periods. Wind erosion is a hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a medium level of management is applied, but yields are reduced by periodic drought or wetness. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields. The flooding restricts grazing in some years.

This soil is suited to the production of slash pine, longleaf pine, and loblolly pine. Moderate equipment limitations, moderate seedling mortality, and severe plant competition are management concerns. Using field machinery that is equipped with large, low-pressure tires or tracks helps overcome the equipment limitation. This restriction can be overcome by harvesting when the soil is dry. Seedling mortality can result from flooding. Plant competition can be reduced by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is not suited to urban development. Slow percolation, wetness, and the flooding are severe limitations.

The capability subclass is IIw. The woodland ordination symbol is 9W.

36—Blanton fine sand, 0 to 5 percent slopes, occasionally flooded

This very deep, moderately well drained soil is on low terraces on flood plains along rivers. Individual areas are irregular in shape. They range from about 10 to 75 acres in size.

Typically, the surface layer is dark grayish brown fine sand about 9 inches thick. The subsurface layer, which extends to a depth of 54 inches, is yellowish brown grading to very pale brown sand. The upper part of the subsoil extends to a depth of 63 inches. It is yellowish brown sandy clay loam. The lower part to a depth of 80 inches is light brownish gray to gray sandy clay loam. The subsoil has brown and gray mottles.

In 80 percent of the areas mapped as Blanton fine sand, 0 to 5 percent slopes, occasionally flooded, the Blanton soil and similar soils make up 87 to 99 percent of the unit. Dissimilar soils make up the other 1 to 13 percent. Included with this soil in mapping are small areas of Alpin and Kenansville soils. Alpin soils are better drained than the Blanton soil and are in the slightly higher positions. Kenansville soils are also better drained than the Blanton soil and have a loamy subsoil within a depth of 40 inches. Also included are small areas of soils that have a water table at a depth of 30 to 48 inches and soils that have a subsoil that is stained with organic matter below a depth of 60 inches.

Important properties of the Blanton soil—

Seasonal high water table: At a depth of 4 to 6 feet from March through August, perched
Permeability: Moderately slow
Available water capacity: Low
Flooding: Occasional

This soil is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, loblolly pine, slash pine, longleaf pine, pignut hickory, southern magnolia, sweetgum, water oak, bluejack oak, turkey oak, southern red oak, and live oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This soil is poorly suited to cultivated crops. Seasonal droughtiness and low fertility are management concerns. Irrigation is needed during dry periods. Residue management, including minimum tillage, is needed to preserve moisture during dry periods and to minimize erosion. Lime and fertilizer, which are needed to compensate for the low fertility of the soil, should be applied according to the needs of the crop.

This soil is suited to improved pasture grasses. Improved bermudagrass and bahiagrass produce

moderate yields if properly managed. Controlled grazing and proper applications of lime and fertilizer are needed to obtain optimum production. The flooding restricts grazing in some years.

This soil is suited to the production of loblolly pine, slash pine, and longleaf pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. Site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil.

This soil is not suited to urban development. The flooding and wetness are severe limitations.

The capability subclass is IIIs. The woodland ordination symbol is 11S.

37—Eunola loamy fine sand, 0 to 5 percent slopes, occasionally flooded

This very deep, moderately well drained soil is on flood plains along rivers and creeks. It is occasionally flooded for long periods following prolonged, high intensity rains. Individual areas are irregular in shape. They range from 5 to 50 acres in size.

Typically, the surface layer is grayish brown loamy fine sand 6 inches thick. Below this to a depth of 10 inches is a transition layer of light yellowish brown fine sandy loam. The subsoil, which extends to a depth of 54 inches, is dark yellowish brown grading to yellowish brown sandy clay loam. Below this to a depth of 68 inches is a layer of brownish yellow fine sandy loam that is transitional to the substrata. The underlying layer to a depth of 80 inches or more is very pale brown loamy sand that has strata of sandy loam.

In 80 percent of the areas mapped as Eunola loamy fine sand, 0 to 5 percent slopes, occasionally flooded, the Eunola soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Blanton, Ocilla, and Wahee soils. Also included are small areas of the soils that have a slope of 5 to 8 percent and small areas of soils that have a sandy surface layer that is more than 20 inches thick. Blanton soils are sandy to a depth of more than 40 inches. Ocilla soils are in the slightly lower positions and have a higher seasonal high water table than that in the Eunola soil. Wahee soils are in the slightly lower positions and have a clayey subsoil.

Important properties of the Eunola soil—

Depth to the seasonal high water table: 1$^1/_2$ to 2$^1/_2$ feet from November through March
Permeability: Moderate
Available water capacity: Low
Flooding: Occasional

This soil is in the Mixed Hardwood and Pine ecological community, which has several variations of tree stands. In the early successional stages, pine is present with loblolly pine predominating. As the system matures, hardwoods replace the pines. The natural climax vegetation is thought to be a beech-magnolia-maple association.

Characteristic plant community—

Trees: Blue beech, American holly, eastern hophornbean, flowering dogwood, hawthorns, loblolly pine, slash pine, mockernut hickory, pignut hickory, southern red oak, sweetgum, southern magnolia, white oak, and water oak
Shrubs: Shining sumac and sparkleberry
Herbaceous plants and vines: Aster, common ragweed, partridgeberry, partridge pea, poison ivy, viola, Virginia creeper, and wild grape
Grasses: Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola

This soil is suited to cultivated crops. It is limited only by the occasional flooding. Most of the crops that are adapted to the area can be grown on this soil but require good management and the use of conservation practices, such as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a hazard if the surface layer is unprotected.

This soil is suited to improved pasture and hay crops. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a medium level of management is applied, but yields are reduced by periodic drought or wetness. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields. The flooding restricts grazing in some years.

This soil is suited to the production of slash pine and loblolly pine. Moderate equipment limitations and

moderate plant competition are management concerns. They can be overcome by harvesting when the soil is dry. Plant competition can be reduced by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This soil is not suited to urban development. Wetness and the flooding are severe limitations.

The capability subclass is IIw. The woodland ordination symbol is 10w.

46—Stockade fine sandy loam

This very deep, poorly drained soil is on lowland flats near drainageways and in shallow depressions. Individual areas are irregular in shape. They range from about 5 to 80 acres in size. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray fine sandy loam about 10 inches thick. The subsoil, which extends to a depth of 54 inches, is sandy clay loam. It is gray and very dark gray in the upper part and very dark gray and light gray in the lower part. The underlying material to a depth of 80 inches or more is very dark gray and light gray stratified sandy clay loam and fine sandy loam.

In 80 percent of the areas mapped as Stockade fine sandy loam, the Stockade soil and similar soils make up 79 to 99 percent of the unit. Dissimilar soils make up the other 1 to 21 percent. Included in mapping are areas of Pelham and Surrency soils. Pelham soils have sandy surface and subsurface layers. Surrency soils are in the lower positions and have a black surface layer.

Important properties of the Stockade soil—

Seasonal high water table: At the surface to a depth of 1 foot from June through March
Permeability: Slow
Available water capacity: Moderate
Flooding: None

This soil is in the Wetland Hardwood Hammocks ecological community. This community has an evergreen appearance because it is dominated by laurel oak, live oak, and water oak. It supports a luxurious growth of vegetation with a diversity of species. Areas of the Swamp Hardwoods ecological community are commonly found in depressional areas of the Wetland Hardwood Hammocks ecological community.

Characteristic plant community—

Trees: Live oak, laurel oak, redbay, red maple, sweetbay, sweetgum, water oak, magnolia, hawthorns, blackgum, loblolly pine, pond pine, and swamp chestnut oak
Shrubs: Witchhazel, saw palmetto, shining sumac, and wax-myrtle
Herbaceous plants and vines: Cinnamon fern, crossvine, poison ivy, royal fern, Spanish moss, Virginia creeper, wild grape, and yellow jessamine
Grasses and grasslike plants: Beaked panicum, eastern gamagrass, longleaf uniola, chalky bluestem, and maidencane

This soil is poorly suited to cultivated crops. Wetness and low natural fertility are management concerns. Adapted crops and very intensive management practices are needed. In areas that have a good water-control system, this soil is suited to some crops if soil improving measures are applied. A water-control system is needed to remove excess surface water during wet periods and to provide water for subsurface irrigation during dry periods. Row crops should be rotated with close-growing, soil improving cover crops. Soil improving cover crops and residue from other crops should be used to maintain the content of organic matter and to help control wind erosion. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be applied according to the needs of the crops.

This soil is suited to improved pasture grasses. Improved bermudagrass, improved bahiagrass, and clover are well adapted to this soil and grow well if properly managed. A water-control system is needed to remove excess surface water during heavy rains and during floods. Regular applications of fertilizer are needed to obtain high yields. Controlled grazing helps to maintain plant vigor.

This soil is suited to the production of loblolly pine. Severe equipment limitations, severe seedling mortality, and severe plant competition are management concerns. Surface drainage is needed to obtain optimum yields. Timely scheduling of site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Logging systems that leave residual biomass well distributed over the site help maintain the content of organic matter and the residual fertility of the soil.

This soil is poorly suited to urban development. The seasonal high water table, slow percolation, and seepage are management concerns. Deep drainage

can help to lower the seasonal high water table. If this soil is used as a site for septic tanks absorption fields, mounding is needed. If the density of housing is moderate to high, community sewage systems are needed to prevent the contamination that seepage causes to ground water supplies.

The capability subclass is VIw. The woodland ordination symbol is 10W.

47—Goldhead fine sand, 0 to 5 percent slopes

This very deep, poorly drained soil is in interstream divides on uplands. Individual areas are irregular in shape. They range from about 5 to 40 acres in size.

Typically, the surface layer is black grading to dark gray fine sand and is about 4 inches thick. The subsurface layer is light gray fine sand to a depth of 36 inches. The subsoil is dark gray sandy loam grading to very dark gray sandy clay loam to a depth of 80 inches.

In 80 percent of the areas mapped as Goldhead fine sand, 0 to 5 percent slopes, the Goldhead soil and similar soils make up 79 to 99 percent of the unit. Dissimilar soils make up the other 1 to 21 percent. Included in mapping in the slightly higher positions are areas of Albany and Wampee soils. Albany soils are better drained than the Goldhead soils. Wampee soils have a surface layer of loamy sand.

Important properties of the Goldhead soil—

Seasonal high water table: At the surface to a depth of 1 foot from July through March
Permeability: Moderate
Available water capacity: Low
Flooding: None

This soil is in the Wetland Hardwood Hammocks ecological community. This community has an evergreen appearance because it is dominated by laurel oak, live oak, and water oak. It supports a luxurious growth of vegetation with a diversity of species. The Swamp Hardwoods ecological community is commonly found in depressional areas of the Wetland Hardwood Hammocks ecological community.

Characteristic plant community—

Trees: Laurel oak, redbay, slash pine, loblolly pine, red maple, sweetbay, blackgum, sweetgum, water oak, magnolia, and hawthorns
Shrubs: Witchhazel, saw palmetto, shining sumac, and wax-myrtle
Herbaceous plants and vines: Cinnamon fern, crossvine, poison ivy, royal fern, Spanish moss, Virginia creeper, wild grape, and yellow jessamine
Grasses and grasslike plants: Beaked panicum, eastern gamagrass, longleaf uniola, chalky bluestem, and maidencane

This soil is poorly suited to cultivated crops. Wetness and low natural fertility are management concerns. Adapted crops and very intensive management practices are needed. In areas that have a good water-control system, this soil is suited to some crops if soil improving measures are applied. A water-control system is needed to remove excess surface water during wet periods and to provide water for subsurface irrigation during dry periods. Row crops should be rotated with close-growing, soil improving cover crops. Soil improving cover crops and residue from other crops should be used to maintain the content of organic matter and to help control wind erosion. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be applied according to the needs of the crops.

This soil is suited to improved pasture grasses. Improved bermudagrass, improved bahiagrass, and clover are well adapted to this soil and grow well if properly managed. A water-control system is needed to remove excess surface water during heavy rains. Regular applications of fertilizer are needed to obtain high yields. Grazing should be strictly controlled to maintain plant vigor.

This soil is suited to the production of slash pine and loblolly pine. Moderate equipment limitations, severe seedling mortality, and moderate plant competition are management concerns. Timely scheduling of site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Drainage is needed to remove excess surface water during wet periods. Logging systems that leave residual biomass well distributed over the site help maintain the content of organic matter and the residual fertility of the soil.

This soil is poorly suited to urban development. The seasonal high water table, poor filtration, and sandy textures are management concerns. Deep drainage can help to lower the seasonal high water table. If this soil is used as a site for septic tanks absorption fields, mounding is needed. If the density of housing is moderate to high, community sewage systems are

needed to prevent the contamination that seepage causes to ground water supplies.

The capability subclass is IIIw. The woodland ordination symbol is 10W.

48—Bivans loamy sand, 8 to 12 percent slopes

This very deep, poorly drained soil is on narrow side slopes on uplands. Individual areas are irregular in shape. They range from about 5 to 25 acres in size.

Typically, the surface layer is dark gray loamy sand about 4 inches thick. The subsurface layer, which extends to a depth of 16 inches, is dark grayish brown loamy sand. The subsoil, which extends to a depth of 60 inches, is dark gray and grayish brown sandy clay grading to grayish brown sandy clay loam. The substratum is massive, gray clay extending to a depth of 80 inches or more.

In 80 percent of the areas mapped as Bivans loamy sand, 8 to 12 percent slopes, the Bivans soil and similar soils make up 79 to 99 percent of the unit. Dissimilar soils make up the other 1 to 21 percent. Included in mapping are areas of Pelham, Plummer, and Wampee soils. Pelham and Plummer soils are in the lower positions and have a loamy subsoil. Wampee soils are better drained than the Bivans soil and have ironstone nodules in the subsoil.

Important properties of the Bivans soil—

Seasonal high water table: At a depth of 1 to 1$^{1}/_{2}$ feet from June through September, perched
Permeability: Slow
Available water capacity: Moderate
Flooding: None

This soil is in the Wetland Hardwood Hammocks ecological community. This community has an evergreen appearance because it is dominated by laurel oak, live oak, and water oak. It supports a luxurious growth of vegetation with a diversity of species. The Swamp Hardwoods ecological community is commonly found in depressional areas of the Wetland Hardwood Hammocks ecological community.

Characteristic plant community—

Trees: Live oak, laurel oak, redbay, red maple, sweetbay, sweetgum, water oak, magnolia, hawthorn, slash pine, loblolly pine, hickory, and American holly
Shrubs: Witchhazel, saw palmetto, shining sumac, and wax-myrtle
Herbaceous plants and vines: Cinnamon fern, crossvine, poison ivy, royal fern, Spanish moss, Virginia creeper, wild grape, and yellow jessamine
Grasses and grasslike plants: Beaked panicum, eastern gamagrass, longleaf uniola, chalky bluestem, and maidencane

This soil is not suited to cultivated crops. Wetness, slope, and erosion are management concerns.

This soil is poorly suited to improved pasture grasses. Slope and erosion are management concerns. Improved bermudagrass, improved bahiagrass, and clover are adapted to this soil and grow well if properly managed. Because of hillside seepage, intensive management is required to produce good yields of pasture grasses. Regular applications of fertilizer are needed to obtain high yields. Grazing should be strictly controlled to maintain plant vigor and to reduce the hazard of erosion in bare areas.

This soil is suited to the production of slash pine and loblolly pine. Moderate equipment limitations and severe plant competition are management concerns. Timely scheduling of site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction and erosion, and minimizes the root damage caused by thinning operations. Logging systems that leave residual biomass well distributed over the site help maintain the content of organic matter and the residual fertility of the soil.

This soil is poorly suited to urban development. The seasonal high water table, the slope, the slow permeability, and a high shrink-swell potential are management concerns. The clayey materials in the subsoil severely restrict this soil for urban uses. Deep drainage can help to lower the seasonal high water table. If this soil is used as a site for septic tanks absorption fields, the fields need to be enlarged or mounded. Community sewage systems are preferred because they prevent the contamination that seepage causes to ground water supplies.

The capability subclass is VIw. The woodland ordination symbol is 11W.

49—Otela-Alpin complex, 0 to 5 percent slopes

These very deep, moderately well drained to excessively drained soils are in broad areas on low uplands. Individual areas are irregular or elongated in

shape. They range from about 10 to 100 acres in size. The components of this complex occur as areas that are too intermingled and too small to separate at the scale selected for mapping.

Typically, the Otela soil has a surface layer of gray sand about 2 inches thick. The subsurface layer, which extends to a depth of 52 inches, is light yellowish brown and very pale brown grading to white sand. The subsoil is reddish yellow sandy clay loam to a depth of 80 inches.

Typically, the Alpin soil has a surface layer of dark grayish brown sand about 4 inches thick. The subsurface layer, which extends to a depth of 47 inches, is yellowish brown grading to yellowish sand. Below this to a depth of 80 inches is very pale brown sand grading to white sand that has thin layers of strong brown loamy sand.

Mapped areas of this unit are about 59 percent Otela and similar soils and 28 percent Alpin and similar soils.

In 90 percent of the areas mapped as Otela-Alpin complex, 0 to 5 percent slopes, Otela, Alpin, and similar soils make up 78 to 98 percent of the unit. Dissimilar soils make up the other 2 to 22 percent.

Important properties of the Otela and Alpin soils—

Seasonal high water table: Otela—at a depth of 4 to 6 feet from July through October, perched; Alpin—at a depth of more than 80 inches
Permeability: Otela—moderately slow; Alpin—very rapid
Available water capacity: Low
Flooding: None

This map unit is in the Longleaf Pine-Turkey Oak Hills ecological community, which has several variations of tree stands. Mature, natural stands of trees have an overstory of scattered longleaf pine. In areas where the pines have been removed, oaks are predominant.

Characteristic plant community—

Trees: Longleaf pine, loblolly pine, turkey oak, bluejack oak, blackcherry, southern red cedar, slash pine, and live oak
Herbaceous plants: Aster, blazingstar, brackenfern, butterfly pea, elephantsfoot, grassleaf goldaster, partridge pea, pineland beggarweed, sandhill milkweed, showy crotalaria, and wild indigo
Grasses and grasslike plants: Curtiss' dropseed, hairy panicum, yellow Indiangrass, low panicum, and pineywood dropseed

This map unit is poorly suited to cultivated crops. Seasonal droughtiness and low fertility are management concerns. Plant nutrients leach rapidly. Corn, peanuts, and watermelons can be grown on this soil but require intensive management, including such conservation practices as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a severe hazard if the surface layer is unprotected.

This map unit is suited to pasture and to hay crops. Droughtiness is a management concern. Deep-rooted plants, such as improved bermudagrass, can be grown if a high level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This map unit is suited to the production of slash pine and longleaf pine. Moderate equipment limitations, moderate to severe seedling mortality, and moderate plant competition are management concerns. The sandy texture restricts the use of wheeled equipment. This restriction can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by selecting proper species and by scheduling planting for periods when favorable weather is predicted. Plant competition can be reduced by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This map unit is moderately suited to urban development. The seasonal high water table and the sandy textures are management concerns. Deep drainage can help to lower the seasonal high water table. If the density of housing is high, community sewage systems may be needed to prevent the contamination that seepage causes to ground water supplies. Onsite evaluation prior to installation is recommended.

The capability subclass is IIIs in area of the Otela soil and IVs in areas of the Alpin soil. The woodland ordination symbol is 10S in areas of the Otela soil and 8S in areas of the Alpin soil.

51—Bigbee fine sand, undulating, occasionally flooded

This very deep, excessively drained soil is on terraces of rivers and creeks. Individual areas are irregular or elongated in shape. They range from about 20 to 100 acres in size. Slopes range from 0 to 10 percent.

Typically, the surface layer is light brownish gray

fine sand about 9 inches thick. The underlying layers are fine sand. In the upper part, to a depth of 20 inches, they are dark yellowish brown. In the next part, to a depth of 55 inches, they are pale brown grading to brown. In the lower part, to a depth of 80 inches, they are light gray.

In 95 percent of the areas mapped as Bigbee fine sand, undulating, occasionally flooded, the Bigbee soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are some small areas of Blanton soils, which have a seasonal high water table and a loamy subsoil.

Important properties of the Bigbee soil—

Depth to the seasonal high water table: More than 80 inches
Permeability: Rapid
Available water capacity: Low
Flooding: Occasional

This soil is in the Longleaf Pine-Turkey Oak Hills ecological community, which has several variations of tree stands. Mature, natural stands of trees have an overstory of scattered longleaf pine. In areas where the pines have been removed, oaks are predominant. Ground cover is scattered, and numerous bare areas are noticeable.

Characteristic plant community—

Trees: Longleaf pine, slash pine, turkey oak, bluejack oak, blackjack oak, and post oak
Herbaceous plants: Aster, blazingstar, brackenfern, butterfly pea, elephantsfoot, grassleaf goldaster, partridge pea, pineland beggarweed, sandhill milkweed, showy crotalaria, and wild indigo
Grasses and grasslike plants: Curtiss' dropseed, hairy panicum, yellow Indiangrass, low panicum, and pineywood dropseed

This soil is poorly suited to cultivated crops. Seasonal droughtiness and low fertility are management concerns. The occasional flooding is a hazard. Plant nutrients leach rapidly. Corn, peanuts, and watermelons can be grown on this soil but require intensive management, including such conservation practices as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a severe hazard if the surface layer is unprotected.

This soil is suited to pasture and to hay crops. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a high level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This soil is suited to the production of loblolly pine. Moderate seedling mortality is a management concern. The sandy texture restricts the use of wheeled equipment. This restriction can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by increasing the rate and depth of tree planting and by mulching with the residual biomass that is left after harvesting. Plant competition can be reduced by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred. The occasional flooding increases the seedling mortality rate.

This soil is not suited to urban development. The flooding, poor filtration, and the sandy textures are severe limitations.

The capability subclass is IIIs. The woodland ordination symbol is 9S.

52—Pelham fine sand, occasionally flooded

This very deep, poorly drained soil is in wet lowland positions on the flood plains along streams. Individual areas are irregular in shape. They range from about 10 to 40 acres in size. Slopes range from 0 to 2 percent.

Typically, the surface layer is very dark gray fine sand about 7 inches thick. The subsurface layer, which extends to a depth of 25 inches, is dark gray grading to grayish brown fine sand. The subsoil to a depth of 80 inches or more is grayish brown sandy loam grading to gray and dark gray sandy clay loam.

In 80 percent of the areas mapped as Pelham fine sand, occasionally flooded, the Pelham soil and similar soils make up 79 to 99 percent of the unit. Dissimilar soils make up the other 1 to 21 percent. Included in mapping are areas of Albany and Stockade soils. Albany soils are in the slightly higher positions and are better drained than the Pelham soil. Stockade soils have loamy surface and subsurface layers.

Important properties of the Pelham soil—

Seasonal high water table: At the surface to a depth of 1 foot from January through April
Permeability: Moderately slow
Available water capacity: Low
Flooding: Occasional

This soil is in the Wetland Hardwood Hammocks ecological community. This community has an evergreen appearance because it is dominated by

laurel oak, live oak, and water oak. It supports a luxurious growth of vegetation with a diversity of species. The Swamp Hardwoods ecological community is commonly found in depressional areas of the Wetland Hardwood Hammocks ecological community.

Characteristic plant community—

Trees: Slash pine, loblolly pine, redbay, red maple, sweetbay, sweetgum, water oak, magnolia, and hawthorns
Shrubs: Witchhazel, saw palmetto, shining sumac, and wax-myrtle
Herbaceous plants and vines: Cinnamon fern, crossvine, poison ivy, royal fern, Spanish moss, Virginia creeper, wild grape, and yellow jessamine
Grasses and grasslike plants: Beaked panicum, eastern gamagrass, longleaf uniola, chalky bluestem, and maidencane

This soil is poorly suited to cultivated crops. Wetness, flooding, and low natural fertility are management concerns. Adapted crops and very intensive management practices are needed. In areas that have a good water-control system, this soil is suited to some crops if soil improving measures are applied. A water-control system is needed to remove excess surface water during wet periods and to provide water for subsurface irrigation during dry periods. Row crops should be rotated with close-growing, soil improving cover crops. Soil improving cover crops and residue from other crops should be used to maintain the content of organic matter and to help control wind erosion. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be applied according to the needs of the crops.

This soil is suited to improved pasture grasses. Improved bermudagrass, improved bahiagrass, and clover are well adapted to this soil and grow well if properly managed. A water-control system is needed to remove excess surface water during heavy rains and during floods. Regular applications of fertilizer are needed to obtain high yields. Controlled grazing helps to maintain plant vigor.

This soil is suited to the production of slash pine and loblolly pine. Severe equipment limitations, severe seedling mortality, and moderate plant competition are management concerns. Timely scheduling of site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Drainage is needed to remove excess surface water during wet periods. Logging systems that leave residual biomass well distributed over the site help maintain the content of organic matter and the residual fertility of the soil.

This soil is not suited to urban development. The seasonal high water table, flooding, poor filtration, and sandy textures are severe limitations.

The capability subclass is Vw. The woodland ordination symbol is 11W.

54—Pits

This miscellaneous area consists of open excavations from which soil and geologic material have been removed. This material is used for construction material, roadbeds, and fill. Included in this unit are areas of water. The pits range from 2 to 80 acres in size and are 3 to 20 feet deep.

Onsite evaluation is needed to determine the suitability of areas of this unit for land uses.

56—Bibb-Bigbee complex, undulating, occasionally flooded

These very deep, poorly drained and excessively drained soils are in wet lowland positions and on ridged terraces on flood plains along rivers and tributaries. Individual areas are irregular in shape. They range from about 10 to 200 acres in size. Slopes range from 0 to 5 percent. Microrelief caused by scouring is common. The components of this complex occur as areas that are too intermingled and too small to separate at the scale selected for mapping.

Typically, the Bibb soil has a surface layer of very dark gray silt loam about 2 inches thick. The subsurface layer is dark brown sandy loam 15 inches thick. The underlying layers are grayish brown sandy loam underlain by dark gray silt loam to a depth of 80 inches or more.

Typically, the Bigbee soil has a surface layer of light brownish gray fine sand about 9 inches thick. The underlying layers are fine sand. In the upper part, to a depth of 20 inches, they are dark yellowish brown. In the next part, to a depth of 55 inches, they are pale brown grading to brown. In the lower part, to a depth of 80 inches, they are light gray.

Mapped areas of this unit are about 40 percent Bibb and similar soils and 30 percent Bigbee and similar soils. The components of this complex occur in a regularly repeating pattern. The Bibb soils are in backwater

areas and drainageways. The Bigbee soils are on ridges and sand flats, usually adjacent to the rivers.

In 80 percent of the areas mapped as Bibb-Bigbee complex, undulating, occasionally flooded, the Bibb, Bigbee, and similar soils make up 85 to 99 percent of the unit. Dissimilar soils make up the other 1 to 15 percent. Included in mapping are areas of Eunola and Blanton soils. Eunola soils are somewhat poorly drained and have loamy layers within a depth of 20 inches. Blanton soils have loamy layers below a depth of 40 inches.

Important properties of the Bibb and Bigbee soils—

Depth to the seasonal high water table: Bibb—$^1/_2$ to 1 foot from December through May; Bigbee—3$^1/_2$ to 6 feet from January through March
Permeability: Bibb—moderate; Bigbee—rapid
Available water capacity: Bibb—medium; Bigbee—low
Flooding: Occasional

The areas of the Bibb soil are in the Wetland Hardwood Hammocks ecological community. This community has an evergreen appearance because it is dominated by laurel oak, live oak, and water oak. It supports a luxurious growth of vegetation with a diversity of species. The Swamp Hardwoods ecological community is found in depressional areas of the Wetland Hardwood Hammocks ecological community.

Characteristic plant community on the Bibb soil—

Trees: Live oak, laurel oak, redbay, red maple, sweetbay, sweetgum, water oak, magnolia, and hawthorns
Shrubs: Witchhazel, saw palmetto, shining sumac, bamboo, and wax-myrtle
Herbaceous plants and vines: Cinnamon fern, crossvine, poison ivy, royal fern, Virginia creeper, wild grape, and yellow jessamine
Grasses and grasslike plants: Beaked panicum, eastern gamagrass, longleaf uniola, chalky bluestem, and maidencane

The areas of the Bigbee soil are in the Longleaf Pine-Turkey Oak Hills ecological community, which has several variations of tree stands. Mature, natural stands of trees have an overstory of scattered longleaf pine. In areas where the pines have been removed, oaks are predominant. Ground cover is scattered, and numerous bare areas are noticeable.

Characteristic plant community on the Bigbee soil—

Trees: Longleaf pine, sweetgum, water oak, blackgum, turkey oak, and bluejack oak
Herbaceous plants: Aster, blazingstar, brackenfern, butterfly pea, elephantsfoot, grassleaf goldaster, partridge pea, pineland beggarweed, sandhill milkweed, showy crotalaria, and wild indigo
Grasses and grasslike plants: Curtiss' dropseed, hairy panicum, yellow Indiangrass, low panicum, and pineywood dropseed

This map unit is poorly suited to cultivated crops. Wetness, flooding, and low natural fertility are management concerns. Adapted crops and very intensive management practices are needed. In some areas that have a good water-control system, this soil is suited to some crops if soil improving measures are applied. A water-control system is needed to remove excess surface water during wet periods and to provide water for subsurface irrigation during dry periods. Row crops should be rotated with close-growing, soil improving cover crops. Soil improving cover crops and residue from other crops should be used to maintain the content of organic matter and to help control wind erosion. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be applied according to the needs of the crops.

This map unit is suited to improved pasture grasses. Improved bermudagrass, improved bahiagrass, and clover are moderately adapted to this map unit. Establishing pasture on this map unit is especially risky due to the flooding. A water-control system is needed to remove excess surface water during heavy rains. Regular applications of fertilizer are needed to obtain high yields. Controlled grazing helps to maintain plant vigor.

This map unit is suited to the production of loblolly pine. Severe equipment limitations, severe seedling mortality, a moderate hazard of windthrow, and severe plant competition are management concerns. Timely scheduling of site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Drainage is needed to remove excess surface water during wet periods. Logging systems that leave residual biomass well distributed over the site help maintain the content of organic matter and the residual fertility of the soil.

This map unit is not suited to urban development. The seasonal high water table, poor filtration, and the flooding are severe limitations.

The capability subclass is IIIw in areas of the Bibb soil and IVs in areas of the Bigbee soil. The woodland

ordination symbol is 11W in areas of the Bibb soil and 9S in areas of the Bigbee soil.

57—Osier sand, occasionally flooded

This very deep, poorly drained soil is in wet lowland positions on the flood plains along streams. Individual areas are irregular in shape. They range from about 10 to 40 acres in size. Slopes range from 0 to 2 percent.

Typically, the surface layer is about 8 inches thick. It is very dark brown sand grading to dark grayish brown fine sand. The underlying layer, to a depth of 80 inches or more, is light brownish gray to light gray sand.

In 80 percent of the areas mapped as Osier sand, occasionally flooded, the Osier soil and similar soils make up 79 to 99 percent of the unit. Dissimilar soils make up the other 1 to 21 percent. Included in mapping are areas of Plummer and Pottsburg soils. Plummer soils have loamy layers below a depth of 40 inches. Pottsburg soils have dark, stained horizons below a depth of 51 inches.

Important properties of the Osier soil—

Seasonal high water table: At the surface to a depth of $^1/_2$ foot from November through March
Permeability: Very rapid
Available water capacity: Very low
Flooding: Occasional

This soil is in the Wetland Hardwood Hammocks ecological community. This community has an evergreen appearance because it is dominated by laurel oak, live oak, and water oak. It supports a luxurious growth of vegetation with a diversity of species. The Swamp Hardwoods ecological community is commonly found in depressional areas of the Wetland Hardwood Hammocks ecological community.

Characteristic plant community—

Trees: Live oak, slash pine, loblolly pine, laurel oak, redbay, red maple, sweetbay, sweetgum, water oak, magnolia, and hawthorns
Shrubs: Witchhazel, saw palmetto, shining sumac, and wax-myrtle
Herbaceous plants and vines: Cinnamon fern, crossvine, poison ivy, royal fern, Spanish moss, Virginia creeper, wild grape, and yellow jessamine
Grasses and grasslike plants: Beaked panicum, eastern gamagrass, longleaf uniola, chalky bluestem, and maidencane

This soil is poorly suited to cultivated crops. Wetness, flooding, and very low natural fertility are management concerns. Adapted crops and very intensive management practices are needed. In areas that have a good water-control system, this soil is suited to some crops if soil improving measures are applied. A water-control system is needed to remove excess surface water during wet periods and to provide water for subsurface irrigation during dry periods. Row crops should be rotated with close-growing, soil improving cover crops. Soil improving cover crops and residue from other crops should be used to maintain the content of organic matter and to help control wind erosion. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be applied according to the needs of the crops.

This soil is suited to improved pasture grasses. Improved bermudagrass, improved bahiagrass, and clover are moderately adapted to this soil and grow well if properly managed. A water-control system is needed to remove excess surface water during heavy rains and during floods. Regular applications of fertilizer are needed to obtain high yields. Controlled grazing helps to maintain plant vigor.

This soil is suited to the production of slash pine and loblolly pine. Severe equipment limitations, severe seedling mortality, and severe plant competition are management concerns. Timely scheduling of site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Drainage is needed to remove excess surface water during wet periods. Logging systems that leave residual biomass well distributed over the site help maintain the content of organic matter and the residual fertility of the soil.

This soil is not suited to urban development. The seasonal high water table, the flooding, and seepage are severe limitations.

The capability subclass is Vw. The woodland ordination symbol is 11W.

58—Sapelo sand

This very deep, poorly drained soil is in areas of flatwoods and in areas bordering swamps and depressions. Individual areas are irregular in shape. They range from about 10 to 200 acres in size. Slopes range from 0 to 2 percent.

Typically, the surface layer is black sand about 7

inches thick. The subsurface layer is about 12 inches thick. It is dark gray grading to gray sand. The upper subsoil is 9 inches thick and is stained with organic matter. It is very dark brown sand in the upper part and dark yellowish brown sand in the lower part. The transitional layer between the upper subsoil and the lower subsoil is 20 inches thick. It is very pale brown grading to pale brown sand. The lower subsoil extends to a depth of more than 80 inches. It is light gray grading to light brownish gray sandy clay loam.

In 90 percent of the areas mapped as Sapelo sand, the Sapelo soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Albany soils that are in the slightly higher positions and that do not have a sandy, stained subsoil.

Important properties of the Sapelo soil—

Depth to the seasonal high water table: $^1/_2$ foot to $1^1/_2$ feet from November through April
Permeability: Moderately slow
Available water capacity: Low
Flooding: None

This soil is in the North Florida Flatwoods ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. This community typically has a moderate to dense stand of pine trees and an understory of saw palmetto and grasses. The areas that originally supported longleaf pine have been replanted to slash pine.

Characteristic plant community—

Trees: Slash pine and loblolly pine
Shrubs: Ground blueberry, gallberry, saw palmetto, shining sumac, tarflower, and wax-myrtle
Herbaceous plants and vines: Cat greenbrier, common greenbrier, brackenfern, creeping beggarweed, deertongue, dogfennel, gayfeather, greenbrier, and milkwort
Grasses and grasslike plants: Low panicum, broomsedge bluestem, yellow Indiangrass, lopsided Indiangrass, pineland threeawn, and sedges

This soil is not suited to cultivated crops. Wetness and low natural fertility are severe limitations. Adapted crops and very intensive management practices are needed. In areas that have a good water-control system, this soil is suited to many crops if soil improving measures are applied. A water-control system is needed to remove excess surface water during wet periods and to provide water for subsurface irrigation during dry periods. Row crops should be rotated with close-growing, soil improving cover crops. Soil improving cover crops and residue from other crops should be used to maintain the content of organic matter and to help control erosion. Seedbed preparation should include bedding of the rows. Fertilizer and lime should be applied according to the needs of the crops.

This soil is suited to pasture and to hay crops. Improved bermudagrass, improved bahiagrass, and clover are well adapted to this soil and grow well if properly managed. A water-control system is needed to remove excess surface water during heavy rains. Regular applications of fertilizer are needed to obtain high yields. Controlled grazing helps to maintain plant vigor.

This soil is suited to the production of slash pine and loblolly pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. Bedding of rows helps to overcome the limitations caused by excessive wetness. Using field machinery that is equipped with low-pressure tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Plant competition can be controlled by site preparation, such as chopping with a drum chopper. Conventional methods of harvesting timber generally can be used but may be limited during rainy periods. A logging system that leaves most of the biomass on the surface is preferred.

This soil is poorly suited to urban development. The seasonal high water table, poor filtration, and sandy textures are management concerns. Deep drainage can help to lower the seasonal high water table. If this soil is used as a site for septic tanks absorption fields, mounding is needed.

The capability subclass is IIIw. The woodland ordination symbol is 7W.

59—Dorovan muck, depressional

This very deep, poorly drained soil is in swamps and depressions. Individual areas are irregular in shape. They range from about 10 to 175 acres in size.

Typically, the surface layer is very dark brown muck. The underlying materials, which extend to a depth of 55 inches, are black muck containing 15 to 25 percent unrubbed fiber. Below this is dark gray sand to a depth of 80 inches or more.

In 95 percent of the areas mapped as Dorovan muck, depressional, the Dorovan soil and similar soils make up 80 to 99 percent of the unit. Dissimilar soils

make up the other 1 to 20 percent. Included in mapping are some small areas of Mascotte, Pelham, Plummer, and Pottsburg soils. Mascotte and Pottsburg soils have organic-stained subsoil horizons. Also, Mascotte soils have loamy subsoil horizons. Pelham and Plummer soils have sandy surface and subsurface layers and a loamy subsoil.

Important properties of the Dorovan soil—

Seasonal high water table: From 1 foot above the surface to a depth of 1/2 foot from January through December; ponded for long periods following high amounts of rainfall
Permeability: Moderate
Available water capacity: High
Flooding: None

This soil is in the Shrub Bogs-Bay Swamps ecological community. This community is dominated by evergreen vegetation. Bay swamps are forested wetlands and are considered a climax community. Shrub bogs are in the earlier stages of plant succession.

Characteristic plant community—

Trees: Blackgum, buckwheat tree, loblolly bay, pond pine, redbay, slash pine, sweetbay, bald cypress, swamp tupelo, green ash, red maple, and water tupelo
Shrubs: Black titi, doghobble, fetterbush, large gallberry, myrtle-leaved holly, summersweet ciethra, and titi
Herbaceous plants and vines: Greenbrier and spaghnum moss

This soil is not suited to cultivated crops, pasture, production of pine trees, or urban development. Wetness, ponding, and thick layers of soft organic materials are severe limitations.

The capability subclass is VIIw. The woodland ordination symbol is 7W.

60—Alpin-Shadeville complex, karst

These deep and very deep, moderately well drained to excessively drained soils are incised by deep ravines and interspersed by sinkholes that have steep slopes. Individual areas are irregular in shape. They range from 20 to 80 acres in size. The individual components of this complex occur as areas that are too intermingled and too small to separate at the scale selected for mapping.

Typically, the Alpin soil has a surface layer of dark grayish brown sand about 4 inches thick. The upper part of the subsurface layer extends to a depth of 15 inches. It is yellowish brown sand. The lower part, which extends to a depth of 47 inches, is yellow sand. The next layer extends to a depth of 80 inches or more. It is very pale brown grading to pinkish white sand and has thin layers of strong brown loamy sand.

Typically, the Shadeville soil has a surface layer of very dark gray sand about 3 inches thick. The upper part of the subsurface layer extends to a depth of 30 inches. It is pale brown sand. The lower part, which extends to a depth of 38 inches, is light yellowish brown fine sand. The subsoil is brownish yellow sandy clay loam to a depth of 72 inches.

Mapped areas of this unit are about 50 percent Alpin and similar soils, 40 percent Shadeville and similar soils, and 10 percent dissimilar soils. The components of this complex occur in a regularly repeating pattern. The Alpin soils are on the upper, broad, nearly level plateaus. The Shadeville soils are on the steep side slopes of large sinkholes and old river beds.

In 80 percent of the areas mapped as Alpin-Shadeville complex, karst, the Alpin, Shadeville, and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are small areas of Blanton, Bivans, and Wampee soils. Blanton soils have loamy subsoil layers below a depth of 40 inches. Bivans soils are in the lower landscape positions, are poorly drained, and have a subsoil of sandy clay. Wampee soils are somewhat poorly drained.

Important properties of the Alpin and Shadeville soils—

Seasonal high water table: Alpin—at a depth of more than 80 inches; Shadeville—at a depth of 4 to 6 feet from July through October, perched
Permeability: Alpin—rapid; Shadeville—moderate
Available water capacity: Low
Flooding: None

This map unit is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quite sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbean, flowering dogwood, hawthorn, turkey oak, post oak, bluejack oak, blackjack oak, laurel oak, laurelcherry, live oak, loblolly pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This map unit is poorly suited to cultivated crops. Seasonal droughtiness, erosion, and low fertility are management concerns. Irrigation is needed during dry periods but may not be practical in the steeper or depressional areas. Residue management, including minimum tillage, is needed to preserve moisture and to help control erosion. Lime and fertilizers should be applied on the basis of soil testing. They are needed to help compensate for the low soil fertility.

This map unit is suited to improved pasture grasses. Droughtiness is a management concern. Improved bermudagrass and bahiagrass produce moderate yields if properly managed. Controlled grazing and proper applications of lime and fertilizer are needed to obtain optimum yields.

This map unit is suited to the production of slash pine and loblolly pine. Moderate equipment limitations, moderate seedling mortality, and moderate plant competition are management concerns. Site preparation, such as harrowing and bedding, helps establish seedlings, reduces the seedling mortality rate, and increases early growth. Chopping and bedding minimize debris, help to control competing vegetation, and facilitate planting. Using field machinery that is equipped with large, low-pressure rubber tires or tracks helps overcome the equipment limitations, reduces the extent of soil compaction, and minimizes the root damage caused by thinning operations. Logging systems that leave residual biomass well distributed over the site increase the content of organic matter and the residual fertility of the soil.

This map unit has highly variable suitability for urban development. Depth to rock and seepage are management concerns. Onsite investigation is needed to determine suitability.

The capability subclass is IVs in areas of the Alpin soil and VIs in areas of the Shadeville soil. The woodland ordination symbol is 8S in areas of the Alpin soil and 11S in areas of the Shadeville soil.

61—Arents, 0 to 5 percent slopes

This unit consists of very deep, highly variable soil material that has been reworked by earthmoving equipment. It includes areas modified during phosphate mining and areas of sanitary landfills. These areas have been reclaimed and planted to grasses and pine trees. Individual areas range from 5 to 1,000 acres in size. The thickness of the material ranges from 2 to 30 feet. Small open pits that are filled with water are common in some areas. Some areas have had sand pumped into the open pit and have been brought to grade by leveling the reworked materials.

This unit consists of mixed white, light gray, brownish yellow, very pale brown, yellowish brown, grayish brown, brown, dark brown, and black fine sand, sand, loamy sand, sandy loam, sandy clay, and clay. The mixture is remnant material from spodic and argillic horizons. This material lacks any orderly sequence of horizons.

In 90 percent of the areas mapped as Arents, 0 to 5 percent slopes, the Arents and similar soils make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are areas of Pits.

Important properties of the Arents—

Depth to the seasonal high water table: More than 6 feet
Permeability: Very rapid
Available water capacity: Low
Flooding: None

Arents do not have a native plant community. Most areas are seeded to bahiagrass or planted to pine trees.

This map unit is unsuited to cultivated crops. Water percolation varies, causing problems with irrigation, drainage, and erosion. Aeration is poor due to compaction, and the soil has a tendency to develop a surface crust.

This map unit is suited to improved pasture and the production of pines. Low fertility, erosion, and soil compaction are management concerns. Bahiagrass is the most common pasture grass. Controlled grazing helps to maintain plant vigor. Sweetgum and bald cypress are planted in some wetter areas. Most of these plantings are experimental.

This map unit has variable suitability for urban development. Onsite evaluation is needed to determine suitability.

This map unit has not been assigned a capability subclass or a woodland suitability group.

62—Resota-Blanton-Bigbee complex, occasionally flooded

These very deep, moderately well drained and excessively drained soils are on flood plains. Individual areas are irregular in shape. They range from 20 to 100 acres in size. The individual components of this complex occur as areas that are too intermingled and too small to separate at the scale selected for mapping. Slopes range from 0 to 8 percent.

Typically, the Resota soil has a surface layer of gray fine sand about 5 inches thick. The subsurface layer, which extends to a depth of 25 inches, is white fine sand. The upper part of the subsoil is yellowish brown fine sand to a depth of 40 inches. The lower part, which extends to a depth of about 50 inches, is yellowish brown fine sand that has brownish yellow mottles. It is underlain to a depth of 80 inches or more by very pale brown fine sand that has light gray mottles.

Typically, the Blanton soil has a surface layer of dark grayish brown fine sand about 9 inches thick. The subsurface layer, which extends to a depth of 54 inches, is yellowish brown grading to very pale brown sand. The upper part of the subsoil extends to a depth of 63 inches. It is yellowish brown sandy clay loam. The lower part to a depth of 80 inches is light brownish gray to gray sandy clay loam. The subsoil has brown and gray mottles.

Typically, the Bigbee soil has a surface layer of light brownish gray fine sand about 9 inches thick. The underlying layers are fine sand. In the upper part, to a depth of 20 inches, they are dark yellowish brown. In the next part, to a depth of 55 inches, they are pale brown grading to brown. In the lower part they are light gray to a depth of 80 inches.

Mapped areas of this unit are about 35 percent Resota and similar soils, 33 percent Blanton and similar soils, and 25 percent Bigbee and similar soils. The components of this complex occur in a regularly repeating pattern. The Resota soils are in low positions in swales, the Blanton soils are on side slopes, and the Bigbee soils are on terraces and summits. The individual areas of Resota, Blanton, and Bigbee soils are too small to separate at the scale selected for mapping.

In 80 percent of the areas mapped as Resota-Blanton-Bigbee complex, undulating, occasionally flooded, the Resota, Blanton, Bigbee, and similar soils make up 75 to 99 percent of the unit. Dissimilar soils make up the other 1 to 25 percent. Included in mapping are small areas of Otela soils, which have limestone bedrock within a depth of 80 inches.

Important properties of the Resota, Blanton, and Bigbee soils—

Seasonal high water table: Resota—at a depth of $3^1/_2$ to 5 feet from December through April, apparent; Blanton—at a depth of 5 to 6 feet from March through April, perched; Bigbee—at a depth of $3^1/_2$ to 6 feet from January through March, apparent
Permeability: Resota—very rapid; Bigbee—rapid; Blanton—moderate
Available water capacity: Low
Flooding: Occasional

This map unit is in the Upland Hardwood Hammocks ecological community. The type and amount of vegetation in this ecological community vary depending on the successional stage. In the early successional stages, pine and sweetgum generally are dominant and the understory is blackberries and broomsedge. This community is considered to be in a climax stage of vegetation when it has only a few pines and is dominated by hardwoods. Under climax conditions, the understory vegetation may be quiet sparse.

Characteristic plant community—

Trees: Blue beech, American holly, black cherry, eastern hophornbeam, flowering dogwood, hawthorn, laurel oak, laurelcherry, live oak, loblolly pine, longleaf pine, sand pine, slash pine, spruce pine, pignut hickory, southern magnolia, sweetgum, bluejack oak, turkey oak, southern red oak, and water oak
Shrubs: American beautyberry, arrowwood, sparkleberry, and wax-myrtle
Herbaceous plants and vines: Aster, cat greenbrier, common greenbrier, crossvine, partridgeberry, partridge pea, poison ivy, ragweed, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry
Grasses and grasslike plants: Low panicum, switchgrass, and broomsedge

This map unit is poorly suited to cultivated crops. Droughtiness and the flooding are management concerns. Plant nutrients leach rapidly. Corn, peanuts, and watermelons can be grown on this soil

but require intensive management, including such conservation practices as a crop rotation system that includes cover crops, the return of crop residue to the soil, and proper applications of fertilizer and lime. Irrigation is needed during droughty periods. Wind erosion is a severe hazard if the surface layer is unprotected.

This map unit is suited to pasture and to hay crops. Deep-rooted plants, such as improved bermudagrass and bahiagrass, can be grown if a high level of management is applied, but yields are reduced by periodic drought. Regular applications of fertilizer and lime are needed. Controlled grazing helps to maintain plant vigor and to obtain maximum yields.

This map unit is suited to the production of slash pine and loblolly pine. Moderate equipment limitations, moderate to severe seedling mortality, and moderate plant competition are management concerns. The sandy texture restricts the use of wheeled equipment. This restriction can be overcome by harvesting when the soil is moist. Seedling mortality caused by droughtiness can be partly overcome by increasing the rate and depth of tree planting and by mulching with the residual biomass that is left after harvesting. Plant competition can be reduced by site preparation, such as chopping with a drum chopper. A logging system that leaves most of the biomass on the surface is preferred.

This map unit is not suited to urban development. The flooding and proximity to the river are severe limitations.

The capability subclass is IVs in areas of the Resota and Bigbee soils and IIIs in areas of the Blanton soil. The woodland ordination symbol is 8S in areas of the Resota soil, 11S in areas of the Blanton soil, and 9S in areas of the Bigbee soil.

63—Arents-Water complex

This highly variable map unit consists of a series of pits containing water, paralleled by long, steep mounds of soil materials that have been reworked by earthmoving equipment during phosphate mining. Some areas have been seeded to grasses. Individual areas vary in size from 100 to 500 acres. The individual components of this complex occur as areas that are too intermingled and too small to separate at the scale selected for mapping.

The Arents consist of white, light gray, brownish yellow, very pale brown, yellowish brown, grayish brown, dark brown, and black fine sand, sand, loamy sand, sandy loam, sandy clay loam, sandy clay, and clay. The mixture is remnant material from spodic and argillic horizons. This material lacks any orderly sequence of horizons.

Mapped areas are about 55 percent Arents and similar soils and 45 percent water. The components of this complex occur in a regularly repeating pattern. The Arents are on convex landscapes. The areas of water are in concave positions between the areas of Arents.

In 90 percent of the areas mapped as Arents-Water complex, the Arents, water, and soils that have characteristics similar to those of the Arents make up 90 to 99 percent of the unit. Dissimilar soils make up the other 1 to 10 percent. Included in mapping are poorly drained areas.

Important properties of the Arents—

Depth to the seasonal high water table: More than 6 feet
Permeability: Very rapid
Available water capacity: Low
Flooding: None

Arents do not have a native plant community. Most of the older areas are seeded to bahiagrass.

This map unit is unsuited to cultivated crops, pine trees, and urban development. Slope and the highly variable soil properties are severe limitations.

This map unit has not been assigned a capability subclass or a woodland suitability group.

64—Hydraquents, clayey

This map unit consists of areas of slime (colloidal clay) that has been pumped into holding ponds. This material is a byproduct of phosphate mining and is too weak to support grazing animals. Standing water is also in the holding ponds. The ponds are built with a 30 to 40 foot dike surrounding them. The thickness of the clay is variable. Mapped areas are irregular in shape and range from 20 to 600 acres in size.

Typically, the soil material is about 85 percent clay, 10 percent silt, and 5 percent sand. It is dominantly gray and light gray and has yellowish brown mottles in some pedons. Montmorillonite is the principal clay mineral.

In 95 percent of the areas mapped as Hydraquents, clayey, the Hydraquents and soils that have characteristics similar to those of the Hydraquents make up 90 to 99 percent of the unit. Dissimilar soils make up the other 1 to 10 percent. Included in mapping are areas of Pits and Arents.

Important properties of the Hydraquents—

Seasonal high water table: At or above the surface
Permeability: Very slow
Available water capacity: Very high
Flooding: None

Hydraquents, clayey, do not have a native plant community. Most settled areas support hyacinths, cattails, and willows.

This map unit is unsuited to cultivated crops, pasture, pine trees, and urban development. Wetness, very slow permeability, low strength, and the shrink-swell potential are severe limitations.

This map unit has not been assigned a capability subclass or a woodland suitability group.

65—Gypsum land

This map unit consists of areas of gypsum. The gypsum is a byproduct of acid manufacturing and phosphate mining. It is formed along with phosphoric acid by reacting sulfuric acid and rock phosphate. The gypsum is mounded 30 to 80 feet high. The mounds consist of a mass of white gypsum crystals mixed with impurities of silica and organic matter. Individual areas of Gypsum land range from 80 to 400 acres in size.

Gypsum land is typically barren. Acidity and compaction inhibit the growth of most plants

This map unit is not rated for cultivated crops, pasture, woodland, or urban areas. The variability of the soil properties is a severe limitation.

This map unit has not been assigned a capability subclass or a woodland suitability group.

66—Urban land

This map unit consists of areas that are more than 85 percent covered by buildings, streets, industrial complexes, or pavement. Open areas include lawns, gardens, and playgrounds. Most areas of this map unit are in the phosphate mining region. Urban land cannot be recognized as natural soil because most areas have been either filled or excavated. Individual areas range from 5 to 80 acres in size.

This map unit is not suited to cultivated crops, pasture, or woodland. It is not rated as a site for septic tank absorption fields or dwellings without basements. Onsite evaluation is needed to determine suitability for these uses.

This map unit has not been assigned a capability subclass or a woodland suitability group.

67—Quartzipsamments, 1 to 5 percent slopes

This very deep, excessively drained soil is on broad uplands and low knolls. It formed in homogeneous sandy material from phosphate mining operations. Individual areas are irregular in shape. They range from 50 to 500 acres in size.

Typically, the surface layer is grayish brown fine sand about 3 inches thick. The underlying material to a depth of 80 inches or more is light gray sand mixed with brown sand. Some areas have coarse sand or fragments of rocks.

In 90 percent of the areas mapped as Quartzipsamments, 1 to 5 percent slopes, the Quartzipsamments and soils that have similar characteristics make up 80 to 99 percent of the unit. Dissimilar soils make up the other 1 to 20 percent. Included in mapping are areas of Pits; Hydraquents, clayey; and Arents.

Important properties of the Quartzipsamments—

Depth to the seasonal high water table: More than 6 feet
Permeability: Very rapid
Available water capacity: Low
Flooding: None

Quartzipsamments do not have a native plant community. Most areas are seeded to bahiagrass or planted to pine trees.

This map unit is unsuited to most cultivated crops. Droughtiness and rapid leaching of nutrients are management concerns. A few drought-resistant varieties can be grown if irrigation and proper soil amendments are applied.

This map unit is poorly suited to improved pasture. Low fertility, droughtiness, and soil compaction are management concerns. Bahiagrass is the most commonly grown adapted pasture grass. Controlled grazing helps to maintain plant vigor.

This map unit is poorly suited to the production of pines. Droughtiness and low fertility are management concerns.

This map unit is poorly suited to urban development. Seepage of sewage effluent is a management concern. Lining the trenches of septic tank absorption fields with loamy material helps to overcome the seepage. Onsite evaluation is needed to determine suitability for urban development.

This map unit has not been assigned a capability subclass or a woodland suitability group.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the county. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the county. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed for each soil, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

According to the Hamilton County Extension Service and the USDA Farm Service Agency, in 1990 about 95,847 acres in Hamilton County was used for crops and pasture. The acreage included improved pasture; field crops, mainly corn, peanuts, tobacco, sorghum, wheat, oats, peanuts, soybeans, peas, and hay; and specialty crops, such as sweet corn, field peas, grapes, and pecans.

In Hamilton County, the potential of the soils for increased food production is fair. About 300 acres of potentially good cropland is now woodland, and about 400 acres is pasture. These areas could be used as cropland but would need intensive conservation measures to control soil blowing on sandy soils and to control the fluctuating water table. In addition to the reserve capacity represented by these areas, food production could be increased considerably by extending the latest technology to all of the cropland in the county.

Soil erosion is a problem on about one-fourth of the cropland and pasture in Hamilton County. In areas where the slope is more than 2 percent, erosion is a hazard; especially in areas of the moderately well drained Blanton, Eunola, Shadeville, and Otela soils and the somewhat poorly drained Albany soils.

Erosion can reduce productivity and can result in pollution of streams. Productivity is reduced as the surface layer erodes and more of the subsoil is incorporated into the plow layer. Erosion on farmland results in sediment entering streams. Controlling this erosion minimizes the pollution of streams and improves the quality of water for municipal uses, for recreational uses, and for fish and wildlife.

Erosion-control practices provide a protective surface cover, increase the rate of water infiltration, and help to control runoff. A cropping system that

keeps plant cover on the soil for extended periods can hold soil losses to amounts that do not reduce the productive capacity of the soils. On livestock farms, which require pasture and hay, including grasses and legumes in the cropping system helps to control erosion in the sloping areas and improves tilth for the crops that follow in the rotation. The legumes also increase nitrogen levels in the soils.

Minimizing tillage and leaving crop residue on the surface increase the rate of water infiltration and help to control runoff and erosion. Using a no-till method of planting corn and soybeans reduces the hazard of erosion in sloping areas and is suitable on most of the soils in the county.

Contour tillage and terraces are not practical on most of the soils in the county because of the sandy textures and the short, irregular slopes. Stripcropping and diversions help to control runoff and reduce the hazard of erosion. They are most practical on deep, well drained soils that have a uniform slope. Diversions and sod waterways can also help to control runoff and reduce the hazard of erosion. They can be used on many of the soils in the county.

Wind erosion is a major hazard on the sandy soils in the county. Strong winds can damage soils and tender crops in a few hours in open, unprotected areas where the soil is dry and bare. Maintaining a vegetative cover and surface mulch minimize wind erosion.

Wind erosion is damaging for several reasons. It reduces soil fertility by removing finer soil particles and organic matter; damages or destroys crops by sandblasting; spreads diseases, insects, and weed seeds; and creates health hazards and cleaning problems. Control of wind erosion minimizes dust storms and improves the quality of air, resulting in healthier living conditions.

Field windbreaks of adapted trees and shrubs, such as Carolina laurelcherry, sand pine, slash pine, southern redcedar, and Japanese privet, and strip crops of small grains help to minimize wind erosion and crop damage. Field windbreaks and strip crops are narrow plantings made at right angles to the prevailing wind. The interval depends on the erodibility of the soil and the susceptibility of crops to damage from sandblasting.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Additional information on planting windbreaks and screens and on planting and caring for trees and shrubs can be obtained from local office of the National Resources Conservation Service or the Cooperative Extension Service or from a nursery. Information regarding erosion-control practices for each kind of soil is contained in “Erosion Control Handbook—Florida,” which is available at local offices of the Natural Resources Conservation Service.

Soil drainage is a major management concern affecting about 10 percent of the acreage used for crops and pasture in the county. The poorly drained Sapelo soils and the very poorly drained Pamlico, Dorovan, and Surrency soils are naturally so wet that the production of the crops common to the area is generally not practical.

Unless artificially drained, some of the somewhat poorly drained soils are wet enough in the root zone to cause damage to most crops during most years. An example is the Albany soils.

Also, unless artificially drained, some of the poorly drained Sapelo soils are wet enough to cause some damage to pasture plants. These soils also have a low available water capacity and are droughty during dry periods. Adequate production of pasture plants requires subsurface irrigation in areas of these soils.

The very poorly drained Pamlico, Dorovan, and Surrency soils are very wet during rainy periods and have water standing on the surface in most areas. The production of good quality pasture on these soils is not possible without artificial drainage. A combination of surface drainage and irrigation is needed for intensive pasture production on these soils.

Information regarding drainage and irrigation for each kind of soil is available at the local office of the Natural Resources Conservation Service.

Fertility is naturally low on most soils in the county. Most of the soils have a sandy surface layer and are light colored. Many of the soils have a loamy subsoil. Examples are Albany, Eunola, Otela, and Blanton soils.

Otela and Shadeville soils have an acid surface layer and are underlain by calcareous limestone that is slightly alkaline or moderately alkaline. Most of the soils in the county have a surface layer that is strongly acid or very strongly acid and require applications of ground limestone to raise the pH level sufficiently for good crop growth. Nitrogen, potassium, and available phosphorus levels are naturally low in most of these soils.

On all soils, applications of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the expected level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to apply.

Tilth is an important factor affecting the germination

of seeds and the infiltration of water into the soil. Soils that have good tilth are easily cultivated with common tillage equipment and provide a good seedbed.

Most of the soils in the county have a surface layer of sand or loamy fine sand that is light in color and that has a low to moderate content of organic matter. Dorovan and Pamlico soils are exceptions. They are organic soils.

Generally, the structure of the surface layer of most soils in the county is weak. When soils that are dry and that have a low content of organic matter receive intense rainfall, colloidal matter cements and forms a slight crust, particularly if a plowpan is present. The crust is slightly hard when dry and is slightly impervious to water. Once the crust forms, it reduces infiltration and increases runoff. Regular additions of crop residue, manure, and other organic material improve soil structure and reduce crust formation.

Fall plowing is generally not advisable in Hamilton County. Sloping soils, which make up about one-fourth of the cropland in the county, are subject to erosion if plowed at this time. Gullies caused by erosion are common on unprotected soils.

About three-fourths of the cropland in the county is sandy and is subject to soil blowing. Tons of soils are lost each year in the county as result of wind erosion during the spring plowing season.

Field crops grown in the county include corn, soybeans, peanuts, and tobacco. The acreage of grain sorghum could be increased if economic conditions were favorable. Rye and wheat are the common close-growing crops. Oats can also be grown.

The major specialty crop grown commercially in the county is watermelons. A small acreage is used for squash, blueberries, grapes, pecans, and field peas. When economic conditions are favorable, the acreage of blueberries, nursery sod, cabbage, turnips, collards, and mustard greens can be increased.

Deep soils that have good natural drainage are especially well suited to many vegetables and small fruits. If irrigated, about 11,938 acres of the Eunola, Otela, Alpin, Shadeville, and Blanton soils that have a slope of less than 8 percent are very well suited to vegetables and small fruits. Also, if adequately drained, Albany soils are very well suited to vegetables and small fruits.

Information and suggestions about specialty crops can be obtained from the local offices of the Cooperative Extension Service and the Natural Resources Conservation Service.

Differences in pasture yields are closely related to differences in soils. Management of pasture is based on the interrelationship of soils, plants, lime, fertilizer, and moisture.

Pasture in the county is used to produce forage for beef and dairy cattle. Bahiagrass and improved bermudagrass are the major pasture plants grown in the county. Seeds can be harvested from bahiagrass for improved pasture plantings and for commercial purposes. Many cattle producers seed small grains on cropland and overseed rye in pastures in the fall for winter and spring grazing. In pastures of bermudagrass, excess grass is harvested as hay during the summer for feeding during the winter. Also, hay is made from harvested peanuts during the fall for feeding during the winter.

The well drained and moderately well drained Otela, Shadeville, Blanton, and Eunola soils are well suited to bahiagrass and improved bermudagrass. If a good management system is applied, hairy indigo and alyce clover can be grown during the summer and the fall.

The somewhat poorly drained Albany soils are well suited to bahiagrass and to improved bermudagrass if legumes, such as sweetclover, are also grown and if adequate amounts of lime and fertilizer are applied.

If drained where needed, the Sapelo soils are well suited to bahiagrass. Subsurface irrigation increases the length of the growing season and the total production of forage. If adequate amounts of lime and fertilizer are applied, these soils are also well suited to legumes, such as white clover.

Pastures in many parts of the county are greatly depleted by continuous excessive grazing. Pasture yields can be increased by irrigation, by applications of fertilizer and lime, and by growing legumes.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under “Detailed Soil Map Units.” Specific information can be obtained at the local offices of the Cooperative Extension Service and the Natural Resources Conservation Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 4. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit is also shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil

and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the county, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w,* or *s* to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and *s* shows that the soil is limited mainly because it is shallow, droughty, or stony.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w* or *s* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, woodland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management,

including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. The slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 1,441 acres, or 4 percent of the county, would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water were available. Scattered areas of this land are throughout the county, but most are in the southern part, mainly in general soil map unit 1, which is described under the heading “General Soil Map Units.” About 300 acres of this prime farmland is used for crops. The crops grown on this land, mainly corn and soybeans, account for a small amount of the county’s total agricultural income each year.

A recent trend in land use in some parts of the county has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map unit in the county that is considered prime farmland is listed at the end of this section. This listing does not constitute a recommendation for a particular land use. The extent of the map unit is shown in table 3. The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

The map unit that meets the requirements for prime farmland is:

32 Norfolk loamy fine sand, 2 to 5 percent slopes

Ecological Communities

Gregory R. Brannon, soil data quality specialist, and John F. Vance, Jr., biologist, Natural Resources Conservation Service, helped prepare this section.

The ecological community concept is based on the knowledge that a soil type commonly supports a specific vegetative community, which in turn provides the habitat needed by specific wildlife species.

Vegetative communities form recognizable units on the landscape, most of which are apparent to the casual observer after only a little training. Even without prior botanical training, an observer can quickly learn to distinguish between pine flatwoods and pine-turkey oak sandhills, between hardwood hammocks and cypress swamps, and between mangrove swamps and salt marsh. Once a community is recognized, information can be found concerning the general characteristics of the soil on which it occurs and the types of plants and animals it supports.

Although some plants are found only within a very narrow range of conditions, many plants can survive throughout a wide range of conditions. Individual plants that have a wide tolerance level can occur in many different communities and on a variety of soils. When describing ecological communities, plant scientists study the patterns in which vegetation occurs. They study what species occur, the relative abundance of each species, the stage of plant succession, the dominance of species, the position of species on the landscape, and the soil or soils on which the patterns occur. Recognizable patterns of vegetation are usually found in a small group of soil types that have common characteristics. During many years of field observations while conducting soil surveys, the Natural Resources Conservation Service determined which vegetative communities commonly occur on which soils throughout Florida. This information is summarized in a booklet called “26 Ecological Communities of Florida” (USDA, 1989).

In the following paragraphs, the vegetative community occurring on individual map units during the climax state of plant succession is described. The community described is based on relatively natural conditions. Human activities, such as commercial production of pine, agriculture, urbanization, and fire suppression, can alter the community on a specific site and should be considered.

Longleaf Pine-Turkey Oak Hills

The Longleaf Pine-Turkey Oak Hills ecological community is dominated by longleaf pine and by turkey oak, bluejack oak, and sand post oak. Common shrubs include Adam’s needle, coontie, coralbean, shining sumac, and yaupon. Pricklypear cactus, partridge pea, blazingstar, elephantsfoot, wiregrass, grassleafed goldaster, yellow Indiangrass, and dropseed are common. The map units that support the Longleaf Pine-Turkey Oak Hills ecological community in Hamilton County are:

3 Alpin sand, 0 to 5 percent slopes
4 Alpin sand, 5 to 8 percent slopes
9 Foxworth sand, 0 to 5 percent slopes

18 Wadley sand, 0 to 5 percent slopes
22 Alpin fine sand, 0 to 5 percent slopes, occasionally flooded
49 Otela-Alpin complex, 0 to 5 percent slopes
51 Bigbee fine sand, undulating, occasionally flooded
56 The Bigbee portion of Bibb-Bigbee complex, undulating, occasionally flooded

North Florida Flatwoods

The North Florida Flatwoods ecological community is normally dominated by slash pine and by live oak and sand live oak on the slightly higher ridges and an understory of saw palmetto, gallberry, and grasses. Scattered pond pine, water oak, laurel oak, sweetgum, wax-myrtle, and several species of blueberry are also common. Chalky bluestem, broomsedge bluestem, lopsided Indiangrass, low panicums, switchgrass, and wiregrass are the common grasses. Other common plants include grassleafed goldaster, blackberry, brackenfern, deertongue, gayfeather, milkworts, and a variety of seed producing legumes. The map units that support the North Florida Flatwoods ecological community in Hamilton County are:

13 Mascotte sand
14 Pottsburg sand
26 Mascotte and Plummer soils, occasionally flooded
58 Sapelo sand

Mixed Hardwood and Pine

The Mixed Hardwood and Pine ecological community is readily identified by a mixed vegetation of hardwoods and pines on well drained, nondroughty soils. It is dominated by American beech, American holly, eastern hophornbeam, flowering dogwood, hawthorns, loblolly pine, mockernut hickory, pignut hickory, southern red oak, southern magnolia, white oak, water oak, shining sumac, and sparkleberry. Broomsedge bluestem, longleaf uniola, low panicum, and spike uniola are common grasses. Other common plants include aster, common ragweed, partridgeberry, partridge pea, poison ivy, violet, Virginia creeper, and wild grape. Most of the prime farmland in Florida is in this ecological community. A few areas of hydric soils are also in this community. The map units that support the Mixed Hardwood and Pine ecological community in Hamilton County are:

7 Kenansville fine sand, 0 to 5 percent slopes, occasionally flooded
10 Lowndes sand, 0 to 5 percent slopes
11 Lowndes sand, 5 to 8 percent slopes
12 Lowndes and Norfolk soils, 8 to 12 percent slopes
15 Valdosta sand, 0 to 5 percent slopes
16 Valdosta sand, 5 to 8 percent slopes
19 Valdosta-Lowndes complex, 12 to 20 percent slopes
27 Kenansville loamy sand, 0 to 5 percent slopes
29 Bonneau sand, 0 to 5 percent slopes
32 Norfolk loamy fine sand, 2 to 5 percent slopes
35 Wahee fine sandy loam, 0 to 4 percent slopes, occasionally flooded
37 Eunola loamy fine sand, 0 to 5 percent slopes, occasionally flooded

Upland Hardwood Hammocks

The Upland Hardwood Hammock ecological community is normally dominated by black cherry, eastern hornbeam, flowering dogwood, hawthorns, laurel oak, laurelcherry, live oak, loblolly pine, longleaf pine, slash pine, pignut hickory, southern magnolia, sweetgum, and water oak and an understory of American beautyberry, arrowwood, sparkleberry, and wax-myrtle. Low panicums, wood oats, bluestem, and switchgrass are common grasses. Other common plants include aster, cat greenbrier, common greenbrier, crossvine, partridge pea, poison ivy, ragweed, Spanish moss, Virginia creeper, wild grape, yellow jessamine, dotted horsemint, and blackberry. The map units that support the Upland Hardwood Hammocks ecological community in Hamilton County are:

2 Albany fine sand, 0 to 5 percent slopes
5 Blanton sand, 0 to 5 percent slopes
6 Blanton sand, 5 to 8 percent slopes
8 Chipley sand, 0 to 5 percent slopes
17 Wadley sand, 5 to 12 percent slopes
23 Blanton loamy sand, 0 to 5 percent slopes
24 Ocilla loamy fine sand, 0 to 5 percent slopes
25 Wampee-Blanton complex, 8 to 12 percent slopes
28 Wampee loamy sand, 5 to 8 percent slopes
31 Wampee-Blanton complex, 12 to 20 percent slopes
36 Blanton fine sand, 0 to 5 percent slopes, occasionally flooded
60 Alpin-Shadeville complex, karst
62 Resota-Blanton-Bigbee complex, undulating, occasionally flooded

Wetland Hardwood Hammocks

The Wetland Hardwood Hammocks ecological community is normally dominated by cabbage palm,

hawthorns, laurel oak, live oak, water oak, redbay, red maple, sweetbay, and magnolia and an understory of wax-myrtle, witchhazel, and saw palmetto. Longleaf uniola and low panicums are common grasses. Other common plants include cinnamon fern, crossvine, poison ivy, royal fern, Spanish moss, Virginia creeper, wild grape, and yellow jessamine. The map units that support the Wetland Hardwood Hammocks ecological community in Hamilton County are:

33 Pelham sand
34 Plummer sand
46 Stockade fine sandy loam
47 Goldhead fine sand, 0 to 5 percent slopes
48 Bivans loamy sand, 8 to 12 percent slopes
52 Pelham fine sand, occasionally flooded
56 The Bibb portion of Bibb-Bigbee complex, undulating, occasionally flooded
57 Osier sand, occasionally flooded

Shrub Bogs-Bay Swamps

The Shrub Bogs-Bay Swamps ecological community is on hillsides, in depressions, in ravines, and along poorly defined drainageways. The natural vegetation in these areas is dominated by evergreen shrubs or trees and is extremely variable. It is normally dominated by black titi or white titi. Other plants include gallberry, staggerbush, sweet pepper, white cedar, blackgum, doghobble, fetterbush, myrtle-leaved holly, greenbriers, and sphagnum moss. Sweetbay, loblolly bay, redbay, scattered slash pine and pond pine, and cypress are commonly present.

20 Pamlico muck, depressional
21 Plummer and Surrency soils, depressional
59 Dorovan muck, depressional

Woodland Management and Productivity

Silviculture is the primary agricultural activity in Hamilton County. Approximately 228,000 acres, or 68 percent of the county, is woodland. Of this total, about 65 percent is owned or managed by the forest industry, 34 percent is owned by private landowners, and 1 percent is held by the county, State, or Federal government.

About 115,134 acres, or 50 percent of the woodland in the county, is longleaf-slash pine forest type. Slash pine is the dominant species. Loblolly pine and upland hardwoods make up about 26 percent of the woodland in the county, and oak, gum, and cypress make up the remaining 24 percent.

Pulpwood, sawlogs, poles, and veneers are the major forest products in the county. Markets for wood products are plentiful. Pulp and paper mills are the primary outlets.

In addition to the economic benefits derived from woodland, multiple-use benefits, such as recreation, aesthetics, and soil protection, are of primary importance.

Timber management varies from intensive clearcutting, site preparation, and planting to less intensive, natural regeneration.

In recent years reforestation efforts have increased considerably on cultivated private lands due in large part to government incentives to take highly erodible lands out of farm production.

Table 5 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for an indicator tree species. The number indicates the volume, in cubic meters per hectare per year, which the indicator species can produce in a pure stand under natural conditions. The number 1 indicates low potential productivity; 2 or 3, moderate; 4 or 5, moderately high; 6 to 8, high; 9 to 11, very high; and 12 to 39, extremely high. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *W* indicates excess water in or on the soil and *S* indicates sandy texture. The letter *A* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is W and then S.

In the table, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Erosion hazard is the probability that damage will occur as a result of site preparation and cutting where the soil is exposed along roads, skid trails, and fire lanes and in log-handling areas. Forests that have been burned or overgrazed are also subject to erosion. Ratings of the erosion hazard are based on the percent of the slope. A rating of *slight* indicates that no particular prevention measures are needed under ordinary conditions. A rating of *moderate* indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities.

Equipment limitation reflects the characteristics and conditions of the soil that restrict use of the equipment

generally needed in woodland management or harvesting. The chief characteristics and conditions considered in the ratings are slope, stones on the surface, rock outcrops, soil wetness, and texture of the surface layer. A rating of *slight* indicates that under normal conditions the kind of equipment and season of use are not significantly restricted by soil factors. Soil wetness can restrict equipment use, but the wet period does not exceed 1 month. A rating of *moderate* indicates that equipment use is moderately restricted because of one or more soil factors. If the soil is wet, the wetness restricts equipment use for a period of 1 to 3 months. A rating of *severe* indicates that equipment use is severely restricted either as to the kind of equipment that can be used or the season of use. If the soil is wet, the wetness restricts equipment use for more than 3 months.

Seedling mortality refers to the death of naturally occurring or planted tree seedlings, as influenced by the kinds of soil, soil wetness, or topographic conditions. The factors used in rating the soils for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, effective rooting depth, and slope aspect. A rating of *slight* indicates that seedling mortality is not likely to be a problem under normal conditions. Expected mortality is less than 25 percent. A rating of *moderate* indicates that some problems from seedling mortality can be expected. Extra precautions are advisable. Expected mortality is 25 to 50 percent. A rating of *severe* indicates that seedling mortality is a serious problem. Extra precautions are important. Replanting may be necessary. Expected mortality is more than 50 percent.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Plant competition ratings indicate the degree to which undesirable species are expected to invade and grow when openings are made in the tree canopy. The main factors that affect plant competition are depth to the water table and the available water capacity. A rating of *slight* indicates that competition from undesirable plants is not likely to prevent natural regeneration or suppress the more desirable species. Planted seedlings can become established without undue competition. A rating of *moderate* indicates that competition may delay the establishment of desirable species. Competition may hamper stand development, but it will not prevent the eventual development of fully stocked stands. A rating of *severe* indicates that competition can be expected to prevent regeneration unless precautionary measures are applied.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index* and as a *productivity class*. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The *productivity class*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic meters per hectare per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

The first species listed under *common trees* for a soil is the indicator species for that soil. It generally is the most common species on the soil and is the one that determines the ordination class.

Trees to plant are those that are suitable for commercial wood production.

Recreation

A wide variety of recreational opportunities are available in Hamilton County. Many of these are dependent on the wide-open spaces and favorable weather in the county.

Blue Spring Park is the most popular recreational site in the county. A crystal clear spring that rises within the park and flows southward attracts thousands of swimmers, divers, canoeists, and other visitors each year.

Troy Spring County Park offers water activities on the Suwannee River. Camping, hiking, picnicking, and observing wildlife are popular activities at this park.

The rivers in the county provide opportunities for canoeing, kayaking, swimming, diving, and sightseeing.

Recreational activities of a more organized nature are available in or near Mayo, where facilities are

available for outdoor games, baseball, tennis, racquetball, and basketball. Civic clubs and church groups sponsor many of these activities.

The soils of the county are rated in table 6 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations, if any, are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset by soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in the table can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 9 and interpretations for dwellings without basements and for local roads and streets in table 8.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes, stones, or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Wildlife is a valuable resource in Hamilton County. Fishing and hunting are popular, year-round sports. Large areas of wetlands and upland soils provide a wide diversity of habitat.

Primary species include white-tailed deer, squirrels, turkey, bobwhite quail, feral hogs, and waterfowl. Nongame species include raccoon, rabbit, armadillo, opossum, skunk, bobcat, gray fox, red fox, otter, and a variety of songbirds, wading birds, woodpeckers, predatory birds, reptiles, and amphibians. Because almost all of the county is rural, the interspersed farmland and woodland provide generally good wildlife habitat throughout the county. Some of the more important areas of habitat are the flood plains along the Suwannee River, which forms the eastern and southern boundaries of the county, and along the Withlacoochee River, which forms the western boundary. The Cypress Creek Wildlife Management Area and Big Shoals State Forest in the eastern part of the county and the Holton Wildlife Management Area in the southern part of the county also provide valuable habitat.

The large phosphate mining operations in the southeastern part of the county greatly effect fish and wildlife habitats. When an area is being actively mined, fish and wildlife habitat disappears temporarily; however, the areas are reclaimed to a mixture of

forests, ponds, and wetlands that provide quality habitat for a variety of species.

Several small lakes are in the county—most are less than 30 acres in size. Lake Octahatchee, which is 195 acres in size, is the only lake larger than 100 acres. Good fishing is found throughout the county. Game and nongame species include largemouth bass, channel catfish, bullhead catfish, bluegill, redear, spotted sunfish, warmouth, black crappie, chain pickerel, gar, bowfin, and sucker.

A number of endangered and threatened species are in Hamilton County. These range from the seldom seen red-cockaded woodpecker to the more commonly seen southeastern kestrel. A detailed list of these species and information on range and habitat needs is available from the district conservationist at the local office of the Natural Resources Conservation Service.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 7, the soils in the county are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, brome, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and cedar.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, and slope. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are wetness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, deer, sage grouse, meadowlark, and lark bunting.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the “Soil Properties” section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 8 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations, if any, are minor and easily

overcome; *moderate* if soil properties or site features are somewhat restrictive for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable to overcome that special design, soil reclamation, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by a very firm dense layer, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and organic layers can cause the movement of footings. A high water table, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil) and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 9 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations, if any, are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are somewhat restrictive for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or alteration.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, and flooding affect absorption of the effluent.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to

hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, flooding, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope can cause construction problems.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, slope, and flooding affect both types of landfill. Texture, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 10 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by a high water table and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material and have slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of

15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Acidity and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They have little or no gravel and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 11 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features

include less than 5 feet of suitable material and a high content of organic matter, salts, or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; and subsidence of organic layers. Excavating and grading and the stability of ditchbanks are affected by slope and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope and wetness affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Wetness and slope affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 12 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading “Soil Series and Their Morphology.”

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 1993) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1986).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3

inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 13 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^{1}/_{3}$-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For

others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; *high*, more than 6 percent; and *very high*, greater than 9 percent.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.64. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 14 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to two hydrologic groups in the

table, the first letter is for drained areas and the second is for undrained areas.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

The table gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of flooding is more than 50 percent in any year). *Common* is used when the occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on observations of the water table at selected sites and on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in the table are the depth to the seasonal high water table; the kind of water table—that is, perched or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. “More than 6.0” indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1975; Soil Survey Staff, 1994). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 15 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udult*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Aquic* identifies the subgroup that has a water table in the upper part of the profile. An example is Aquic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, siliceous, thermic Aquic Hapludults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is the Eunola series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (USDA, 1975) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 1994). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section “Detailed Soil Map Units.”

Albany Series

The Albany series consists of very deep, somewhat poorly drained soils that formed in sandy material underlain by loamy sediments. These soils are on low uplands and ridges. Slopes range from 0 to 5 percent. The soils of the Albany series are loamy, siliceous, thermic Grossarenic Paleudults.

Albany soils are associated with Blanton, Bonneau, Chipley, Mascotte, Ocilla, Wadley, and Wampee soils. The moderately well drained Blanton soils are in the slightly higher positions. Bonneau soils have loamy layers within a depth of 40 inches and are also in the slightly higher positions. Mascotte soils have a spodic horizon and are in the lower positions. Ocilla soils are in positions similar to those of the Albany soils but have a Bt horizon at a depth of 20 to 40 inches. Wadley soils are well drained and have a Bt horizon below a depth of 40 inches. Wampee soils have a Bt horizon at a depth of 20 to 40 inches.

Typical pedon of Albany fine sand, 0 to 5 percent slopes; about 4,700 feet north and 800 feet west of the southeast corner of sec. 1, T. 1 N., R. 13 E.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) fine sand; weak fine granular structure; very friable; common medium and fine roots; moderately acid; abrupt wavy boundary.

E1—9 to 22 inches; light yellowish brown (2.5Y 6/4) fine sand; single grained; loose; common medium and fine roots; strongly acid; gradual wavy boundary.

E2—22 to 37 inches; very pale brown (10YR 7/4) fine sand; common medium prominent strong brown (7.5YR 5/8) and common medium distinct white (10YR 8/1) mottles; few fine and medium roots; strongly acid; gradual wavy boundary.

E3—37 to 57 inches; very pale brown (10YR 7/4) fine sand; many medium prominent yellowish red (5YR 5/8) and common coarse distinct white (10YR 8/1) mottles; single grained; loose; strongly acid; clear wavy boundary.

Bt—57 to 63 inches; light yellowish brown (10YR 6/4) fine sandy loam; many medium and coarse brown (7.5YR 5/6) and many medium prominent light gray (10YR 7/2) mottles; weak medium subangular blocky structure; very friable; sand grains coated and bridged with clay; very strongly acid; clear wavy boundary.

Btg—63 to 80 inches; gray (10YR 6/1) sandy clay loam; many medium and coarse distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid.

The thickness of the solum is more than 80 inches. Reaction ranges from very strongly acid to slightly acid in the A horizon and from extremely acid to moderately acid in the E and Bt horizons.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 6. The quantity of mottles in shades of yellow, brown, and white ranges from none to many. The texture is sand, fine sand, or loamy sand.

The Bt horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 to 6. It has few to many mottles in shades of yellow, gray, brown, or red; or it has no dominant color and is a mixture of these colors. The texture is sandy loam, fine sandy loam, or sandy clay loam.

The Btg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It has few to many mottles in shades of yellow, brown, or red. It is sandy loam, fine sandy loam, or sandy clay loam.

Alpin Series

The Alpin series consists of very deep, excessively drained soils that formed in thick beds of sandy eolian or marine deposits. These soils are on broad upland and terrace ridges and on side slopes. Slopes range from 0 to 8 percent. The soils of the Alpin series are thermic, coated Argic Quartzipsamments.

Alpin soils are associated with Blanton and Foxworth soils. The moderately well drained Blanton soils have sandy A and E horizons with a combined thickness of 40 to 79 inches underlain by loamy Bt horizons. Foxworth soils do not have lamellae.

Typical pedon of Alpin sand, 0 to 5 percent slopes; about 3,800 feet north and 3,800 feet west of the southeast corner of sec. 36, T. 1 N., R. 11 E.

Ap—0 to 4 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; very friable; many fine roots; strongly acid; gradual wavy boundary.

E1—4 to 15 inches; yellowish brown (10YR 5/4) sand; single grained; loose; common fine roots; strongly acid; gradual wavy boundary.

E2—15 to 47 inches; yellow (10YR 7/6) sand; single grained; loose; many uncoated sand grains; very strongly acid; gradual smooth boundary.

E&Bt1—47 to 60 inches; very pale brown (10YR 7/4) sand (E); single grained; loose; many uncoated sand grains; few strong brown (7.5YR 5/6) loamy sand lamellae (Bt) about 3 millimeters thick; sand grains in lamellae are coated and bridged with clay; individual lamellae are discontinuous in length; very strongly acid; gradual wavy boundary.

E&Bt2—60 to 80 inches; pinkish white (7.5YR 8/2) sand (E); single grained; loose; many uncoated sand grains; common strong brown (7.5YR 5/6) loamy sand lamellae (Bt) about 3 to 15 millimeters in thickness; sand grains in lamellae are coated and bridged with clay; individual lamellae are discontinuous in length; very strongly acid.

The thickness of the solum is more than 80 inches. Reaction is very strongly acid to slightly acid throughout. The content of silt plus clay between depths of 10 and 40 inches is 5 to 10 percent.

The A or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 8. The quantity of streaks of uncoated sand grains, which have hue of 10YR, value of 7 or 8, and chroma of 1 or 2, ranges from none to common. The texture is sand or fine sand.

The E part of the E&Bt horizon has hue of 7.5YR or 10YR, value of 7 or 8, and chroma of 1 to 6. The texture of the E part is sand or fine sand. The B part consists of lamellae that have hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. The texture of the lamellae is loamy sand, loamy fine sand, or sandy loam. The lamellae are 1 to 25 millimeters in thickness and 10 millimeters to more than 50 centimeters in horizontal length.

The Bt horizon, where present, has hue of 7.5YR or 10YR, value of 6 or 7, and chroma of 3 or 4. It is sandy loam or sandy clay loam. It is below a depth of 80 inches and is not diagnostic for the series.

The C horizon, where present, has hue of 10YR, value of 6 or 7, and chroma of 1 to 6. It is sand or fine sand.

Bibb Series

The Bibb series consists of nearly level, poorly drained soils that formed in recent loamy and sandy alluvial sediments. These soils are on flood plains along rivers and their tributaries. Slopes range from 0 to 2 percent. The soils of the Bibb series are coarse-loamy, siliceous, acid, thermic, Typic Fluvaquents.

Bibb soils are associated with the occasionally flooded Bigbee, Blanton, Eunola, and Kenansville soils. All of these associated soils are in higher landscape positions than the Bibb soils. Bigbee soils are excessively drained and sandy. Blanton and Eunola soils are moderately well drained and have a developed Bt horizon. Kenansville soils are well drained and have a Bt horizon that is underlain by sands.

Typical pedon of Bibb silt loam, in an area of Bibb-Bigbee complex, undulating, occasionally flooded; about 4,100 feet north and 500 feet west of the southeast corner of sec. 28, T. 2 N., R. 13 E.

A—0 to 2 inches; very dark gray (10YR 3/1) silt loam; weak fine subangular blocky structure; very friable; many fine roots; strongly acid; gradual wavy boundary.

Ag—2 to 17 inches; dark brown (10YR 3/3) sandy loam; weak fine granular structure; very friable; many fine roots; few medium roots; strongly acid; gradual smooth boundary.

Cg1—17 to 30 inches; grayish brown (10YR 5/2) sand; single grained; loose; few fine roots; about 10 percent phosphatic pebbles; strongly acid; gradual wavy boundary.

Cg2—30 to 42 inches; grayish brown (10YR 5/2) sandy loam; few medium faint gray (10YR 5/1) mottles; weak fine granular structure; very friable; strongly acid; gradual wavy boundary.

Cg3—42 to 80 inches; dark gray (10YR 4/1) clay that has strata of grayish brown (10YR 5/2) and light gray (10YR 7/2) loamy fine sand; massive; sticky; moderately acid.

Reaction ranges from very strongly acid to slightly acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is silt loam, loam, or silty clay loam. It is 2 to 5 inches in thickness.

The Ag horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3. It is sandy loam, silt loam, or loamy fine sand. It is 4 to 19 inches in thickness.

The Cg horizon has hue of 10YR, value of 3 to 7, and chroma of 1 or 2. The texture ranges from sandy loam to silt loam in the upper part and from sand to clay in the lower part. This horizon is stratified in most pedons.

Bigbee Series

The Bigbee series consists of very deep, moderately well drained soils that formed in thick beds of sandy sediments. These soils are on broad, low terraces on flood plains along streams. Slopes range from 0 to 5 percent. The soils of the Bigbee series are thermic, coated Typic Quartzipsamments.

Bigbee soils are associated with Bibb, Blanton, and Kenansville soils. The poorly drained Bibb soils are in the lower positions. The moderately well drained Blanton soils have a Bt horizon at a depth between 40 and 80 inches and are in somewhat lower landscape positions than those of the Bigbee soils. Kenansville soils have a Bt horizon that is underlain by sands.

Typical pedon of Bigbee fine sand, undulating, occasionally flooded; 2,250 feet north and 1,630 feet west of the southeast corner of sec. 33, T. 2 N., R. 16 E.

A—0 to 9 inches; light brownish gray (10YR 6/2) fine sand; weak fine granular structure; very friable; few fine and medium roots; very strongly acid; clear wavy boundary.

C1—9 to 20 inches; dark yellowish brown (10YR 4/4) fine sand; single grained; loose; many fine and medium roots; very strongly acid; gradual wavy boundary.

C2—20 to 36 inches; pale brown (10YR 6/3) fine sand; single grained; loose; common fine and medium roots; very strongly acid; clear wavy boundary.

C3—36 to 55 inches; brown (10YR 5/3) fine sand; single grained; loose; common fine roots throughout; very strongly acid; diffuse smooth boundary.

C4—55 to 80 inches; light gray (10YR 7/2) sand; common medium distinct dark brown (10YR 3/3) mottles; single grained; loose; few fine roots; very strongly acid.

The combined thickness of the sandy layers is 80 inches or more. The content of silt plus clay between depths of 10 and 40 inches is 5 to 10 percent. Reaction ranges from very strongly acid to moderately acid, except where the surface has been limed.

The A horizon has hue of 10YR, value of 3 to 6, and chroma of 1 to 3.

The upper part of the C horizon has hue of 10YR, value of 4 to 7, and chroma of 4 or 5. The lower part of the C horizon has hue of 10YR, value of 5 to 8, and chroma of 1 to 4. The quantity of mottles in shades of yellow, gray, brown, or red ranges from none to common. The texture is sand or fine sand.

Bivans Series

The Bivans series consists of very deep, poorly drained, slowly permeable soils that formed in clayey marine sediments. These soils are on wet side slopes along creeks and drainageways dissecting landscapes draining into rivers. Slopes range from 8 to 12 percent. The soils of the Bivans series are fine, montmorillonitic, hyperthermic Typic Albaqualfs.

Bivans soils are associated with Goldhead, Plummer, and Stockade soils. Goldhead soils are in the slightly lower positions and have sandy A and E horizons with a combined thickness of 20 to 40 inches over a loamy Bt horizon. Plummer soils have sandy surface and subsurface layers with a combined thickness of more than 40 inches. Stockade soils are in the lower landscape positions and have an umbric epipedon.

Typical pedon of Bivans loamy sand, 8 to 12 percent slopes; 5,000 feet north and 4,400 feet west of the southeast corner of sec. 8, T. 1 S., R. 14 E.

A—0 to 4 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; common medium and many fine roots; strongly acid; gradual wavy boundary.

E—4 to 16 inches; dark grayish brown (10YR 5/2) loamy sand; weak medium granular structure; very friable; common medium and fine roots; strongly acid; abrupt wavy boundary.

Btg1—16 to 20 inches; dark gray (10YR 4/1) sandy clay; many coarse prominent yellowish red (5YR 4/6) mottles; moderate medium subangular blocky structure; friable; strongly acid; gradual smooth boundary.

Btg2—20 to 42 inches; grayish brown (10YR 5/2) sandy clay; many coarse prominent yellowish red (5YR 4/6) and many medium distinct light brownish gray (10YR 6/2) mottles; strong medium subangular blocky structure; firm; common medium and fine roots; moderately acid; gradual wavy boundary.

Btg3—42 to 60 inches; grayish brown (10YR 5/2) sandy clay loam; common medium distinct pale yellow (2.5Y 7/4) mottles; common medium dark gray (10YR 4/1) clay pockets; weak medium subangular blocky structure; firm; moderately acid; clear wavy boundary.

Cg—60 to 80 inches; gray (10YR 6/1) clay; common fine distinct olive (5Y 5/4) mottles; massive; slightly sticky; common fine and medium nodules of calcium carbonate; moderately acid.

The thickness of the solum is more than 50 inches. Reaction ranges from very strongly acid to moderately acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is loamy sand or sand.

The E horizon, where present, has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. It is loamy sand or sand.

The Btg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It has mottles in shades of yellow, gray, brown, and red. It is sandy clay or clay. The content of nodules and fragments of ironstone and limestone is less than 5 percent in the lower part of the horizon.

The Cg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or less. It is sandy clay loam, sandy clay, or clay.

Blanton Series

The Blanton series consists of very deep, moderately well drained soils that formed in sandy material underlain by loamy sediments. These soils are on side slopes on uplands. Slopes range from 0 to 20 percent. The soils of the Blanton Series are loamy, siliceous, thermic Grossarenic Paleudults.

Blanton soils are associated with Albany, Alpin,

Bigbee, Chipley, Eunola, Kenansville, Lowndes, Norfolk, Ocilla, Valdosta, Wahee, and Wampee soils. Albany, Chipley, and Ocilla soils are somewhat poorly drained. Alpin soils are excessively drained. Also, Alpin, Bigbee, Chipley, and Valdosta soils do not have a Bt horizon. Alpin soils are in the slightly higher landscape positions. Norfolk soils have a Bt horizon at a depth of less than 20 inches. Eunola soils have a Bt horizon within a depth of 20 inches. Kenansville and Lowndes soils have Bt horizons between depths of 20 and 40 inches. Valdosta soils do not have a loamy Bt horizon. Wahee soils are somewhat poorly drained and clayey. Wampee soils have a Bt horizon at a depth of 20 to 40 inches. The Wahee and Wampee soils are in the slightly lower landscape positions.

Typical pedon of Blanton sand, 0 to 5 percent slopes; about 3,600 feet north and 3,800 feet west of the southeast corner of sec. 8, T. 2 N., R. 11 E.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

E1—9 to 19 inches; yellowish brown (10YR 5/4) sand; weak fine granular structure; very friable; common fine roots; strongly acid; gradual wavy boundary.

E2—19 to 35 inches; light yellowish brown (10YR 6/4) sand; weak fine granular structure; very friable; common uncoated sand grains; few fine roots; strongly acid; gradual wavy boundary.

E3—35 to 54 inches; very pale brown (10YR 7/4) sand; common fine distinct brownish yellow (10YR 6/6) mottles below 50 inches; weak fine granular structure; very friable; strongly acid; gradual wavy boundary.

Bt—54 to 63 inches; yellowish brown (10YR 5/4) sandy clay loam; common medium prominent strong brown (7.5YR 5/6) and common fine distinct gray (10YR 6/1) mottles; weak fine subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

Btg1—63 to 72 inches; light brownish gray (10YR 6/2) sandy clay loam; common medium prominent strong brown (7.5YR 5/6) mottles; weak fine subangular blocky structure; friable; very strongly acid; clear wavy boundary.

Btg2—72 to 80 inches; gray (10YR 5/1) sandy clay loam; weak fine subangular blocky structure; friable; very strongly acid.

The thickness of the solum is more than 80 inches. Reaction ranges from very strongly acid to moderately acid in the A and E horizons and ranges from very strongly acid to strongly acid in the Btg horizon. The content of plinthite is less than 5 percent within a depth of 60 inches.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 4 to 8. It has few or common mottles in shades of yellow or brown in the lower part. The texture is sand, fine sand, or loamy sand.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. It has few or common mottles in shades of gray, brown, and red. It is sandy loam or sandy clay loam.

The Btg horizon has hue of 5YR to 10YR, value of 5 to 7, and chroma of 1 or 2; or it is dominated by chroma of 2 or less and is mottled in shades of brown, yellow, red, and gray. The texture is sandy loam or sandy clay loam.

Bonneau Series

The Bonneau series consists of very deep, moderately well drained soils that formed in sandy material underlain by loamy sediments. These soils are on uplands. Slopes range from 0 to 5 percent. The soils of the Bonneau series are loamy, siliceous, thermic Arenic Paleudults.

Bonneau soils are associated with Albany, Alpin, Chipley, and Ocilla soils. Albany, Chipley, and Ocilla soils are somewhat poorly drained. Alpin soils are excessively drained. Also, Alpin and Chipley soils do not have a Bt horizon. Alpin soils are in the slightly higher landscape positions; the other associated soils are in the slightly lower landscape positions.

Typical pedon of Bonneau sand, 0 to 5 percent slopes; about 2,480 feet north and 400 feet west of the southeast corner of sec. 8, T. 2 N., R. 10 E.

Ap—0 to 6 inches; dark brown (10YR 3/3) sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

E1—6 to 17 inches; yellowish brown (10YR 5/4) sand; weak fine granular structure; very friable; common fine roots; strongly acid; gradual wavy boundary.

E2—17 to 25 inches; yellowish brown (10YR 5/6) sand; weak fine granular structure; very friable; common uncoated sand grains; few fine roots; strongly acid; gradual wavy boundary.

Bt1—25 to 35 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; friable; strongly acid; gradual wavy boundary.

Bt2—35 to 42 inches; very pale brown (10YR 7/4) sandy loam; weak fine subangular blocky

structure; friable; very strongly acid; gradual wavy boundary.

Btg1—42 to 50 inches; light brownish gray (10YR 6/2) sandy clay loam; common medium prominent reddish yellow (7.5YR 6/8) mottles; weak fine subangular blocky structure; friable; very strongly acid; clear wavy boundary.

Btg2—50 to 80 inches; light brownish gray (10YR 6/2) sandy clay; common medium prominent strong brown (7.5YR 5/8) streaks and common distinct very pale brown (10YR 8/3) pockets of sandy loam; weak fine subangular blocky structure; friable; very strongly acid.

The thickness of the solum is more than 80 inches. Reaction ranges from very strongly acid to moderately acid in the A and E horizons and is very strongly acid or strongly acid in the B horizon. The content of ironstone pebbles and plinthite ranges from 0 to 5 percent within a depth of 60 inches.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1 to 3. It is 6 to 12 inches in thickness.

The E horizon has hue of 10YR. It has value of 5 or 6 and chroma of 4 to 8 or has value of 7 and chroma of 3 to 6. It is sand, fine sand, or loamy sand.

The EB horizon, where present, has the same range in color as the E horizon. It is loamy sand or loamy fine sand.

The Bt horizon has hue of 2.5Y to 7.5YR, value of 5 to 7, and chroma of 3 to 8. It is sandy loam or sandy clay loam.

The Btg horizon has hue of 2.5Y to 7.5YR, value of 5 to 7, and chroma of 2. It has few or common mottles in shades of red, brown, gray, and yellow. It is sandy clay loam or sandy clay.

Chipley Series

The Chipley series consists of very deep, somewhat poorly drained soils that formed in sandy sediments on uplands. These soils are in broad, low areas on the uplands and on low ridges in areas of flatwoods. Slopes range from 0 to 5 percent. The soils of the Chipley series are thermic, coated Aquic Quartzipsamments.

Chipley soils are associated with Albany, Blanton, Bonneau, Foxworth, Mascotte, Pamlico, Plummer, Pottsburg, Resota, and Wadley soils. Albany, Blanton, and Bonneau soils have a Bt horizon. Foxworth soils are in the higher landscape positions and are moderately well drained. Mascotte soils are in the lower landscape positions, have a Bh horizon and a Bt horizon, and are poorly drained. Pamlico soils are organic. Plummer soils have sandy surface and subsurface layers with a combined thickness of more than 40 inches. Pottsburg soils are poorly drained and have a Bh horizon. Resota soils are moderately well drained and are in the slightly higher landscape positions. Wadley soils are well drained and have a Bt horizon at a depth of more than 40 inches.

Typical pedon of Chipley sand, 0 to 5 percent slopes; about 1,700 feet north and 2,000 feet west of southeast corner of sec. 18, T. 2 N., R. 12 E.

Ap—0 to 8 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; very friable; many fine roots throughout; strongly acid; clear wavy boundary.

C1—8 to 16 inches; brown (10YR 5/3) sand; single grained; loose; many fine and common medium roots; very strongly acid; diffuse smooth boundary.

C2—16 to 30 inches; pale brown (10YR 6/3) sand; common fine prominent dark yellowish brown (10YR 4/4) and medium dark grayish brown (10YR 4/2) mottles; single grained; loose; many fine and common medium roots; very strongly acid; diffuse smooth boundary.

C3—30 to 56 inches; pale brown (10YR 6/3) sand; common medium prominent strong brown (7.5YR 5/8), common fine distinct light gray (10YR 7/2), and many coarse prominent yellowish brown (10YR 5/8) mottles; single grained; loose; common fine and medium roots throughout; very strongly acid; clear wavy boundary.

C4—56 to 80 inches; light brownish gray (10YR 6/2) sand; common medium prominent yellowish red (5YR 5/8) mottles; single grained; loose; very strongly acid.

The combined thickness of the sand layers is 80 inches or more. The content of silt plus clay between depths of 10 and 40 inches is 5 to 10 percent. Reaction ranges from very strongly acid to moderately acid.

The A or Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is less than 10 inches thick.

The C horizon has hue of 10YR. In the upper part, it has value of 5 or 6 and chroma of 3 to 6. In the lower part, it has value of 6 to 8 and chroma of 1 to 6. The C horizon has few or common mottles in shades of gray, brown, red, and yellow below a depth of 24 inches in most pedons. The texture is sand or fine sand.

Dorovan Series

The Dorovan series consists of very deep, very poorly drained soils composed mostly of partially decomposed organic materials. These soils are in swamps and depressions. The soils of the Dorovan series are dysic, thermic Typic Medisaprists.

Dorovan soils are associated with Mascotte, Pamlico, Plummer, Pottsburg, and Surrency soils. All of the associated soils, except the Pamlico soils, are mineral soils. Pamlico soils have organic layers with a combined thickness of less than 51 inches. Mascotte and Pottsburg soils have a Bh horizon. Mascotte, Pottsburg, and Plummer soils are poorly drained. Surrency soils have a loamy subsoil and are in the slightly lower landscape positions. All of the other associated soils are in the higher landscape positions.

Typical pedon of Dorovan muck, depressional; 125 feet north and 4,500 feet west of the southeast corner of sec. 7, T. 1 N., R. 15 E.

Oe—0 to 4 inches; very dark brown (10YR 3/2) muck consisting of partially decomposed leaves, twigs, roots, and stems; 50 percent fiber after rubbing; slightly sticky; extremely acid; gradual wavy boundary.

Oa1—4 to 13 inches; black (10YR 2/1) muck; 25 percent fiber unrubbed, 5 percent rubbed; massive; sticky; common partially decomposed wood fragments; extremely acid; gradual wavy boundary.

Oa2—13 to 55 inches; black (10YR 2/1) muck; about 15 percent fiber unrubbed, less than 5 percent rubbed; massive; slightly sticky; extremely acid; clear wavy boundary.

Cg—55 to 80 inches; dark gray (10YR 4/1) sand; single grained; loose; very strongly acid.

The combined thickness of the organic material ranges from 51 to more than 80 inches. Reaction is extremely acid or very strongly acid in the organic layers and is very strongly acid or strongly acid in the mineral horizon.

The Oe horizon is neutral in hue and has value of 2 or 3; or it has hue 10YR or 7.5YR, value of 2 to 4, and chroma of 1 to 3. It contains 40 to 90 percent fiber, unrubbed, and 20 to 50 percent, rubbed.

The Oa horizon has hue of 5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. The content of fiber ranges from 10 to 40 percent, unrubbed, and from 5 to 15 percent, rubbed.

The Cg horizon, where present, has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. The texture ranges from sand to clay.

Eunola Series

The Eunola series consists of nearly level to gently sloping, moderately well drained soils that formed in fluvial or marine deposits. These soils are on flood plains along rivers and creeks. Slopes range from 0 to 5 percent. The soils of the Eunola series are fine-loamy, siliceous, thermic Aquic Hapludults.

Eunola soils are associated with Blanton, Kenansville, and Wahee soils. Blanton soils have loamy subsoil layers between depths of 40 and 80 inches. Kenansville soils have loamy subsoil layers between depths of 20 and 40 inches and are well drained. Wahee soils are somewhat poorly drained and are clayey. All of the associated soils are in landscape positions similar to those of the Eunola soils or in the higher landscape positions.

Typical pedon of Eunola loamy fine sand, 0 to 5 percent slopes, occasionally flooded; 2,600 feet north and 1,900 feet west of the southeast corner of sec. 26, T. 1 N., R. 12 E.

Ap—0 to 6 inches; grayish brown (10YR 5/2) loamy fine sand; weak medium granular structure; very friable; common medium, fine, and very fine roots; very strongly acid; clear smooth boundary.

BE—6 to 10 inches; light yellowish brown (10YR 6/4) fine sandy loam; moderate medium granular structure; very friable; common fine and very fine roots; very strongly acid; clear wavy boundary.

Bt1—10 to 18 inches; dark yellowish brown (10YR 5/4) sandy clay loam; weak fine subangular blocky structure; friable; common fine and very fine roots; very strongly acid; clear wavy boundary.

Bt2—18 to 25 inches; yellowish brown (10YR 5/6) sandy clay loam; common medium prominent yellowish red (5YR 5/6) and common medium faint yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; firm; few fine and very fine roots; very strongly acid; gradual wavy boundary.

Bt3—25 to 35 inches; yellowish brown (10YR 5/4) sandy clay loam; common fine distinct light brownish gray (10YR 6/2) and common medium prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

Bt4—35 to 54 inches; yellowish brown (10YR 5/6) sandy clay loam; common fine distinct brownish yellow (10YR 6/8) and few medium distinct gray (10YR 6/1) mottles; weak medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

BC—54 to 68 inches; brownish yellow (10YR 6/6) fine sandy loam; common medium prominent strong brown (7.5YR 5/8) and common medium faint brownish yellow (10YR 6/8) mottles; weak medium granular structure; friable; very strongly acid; clear wavy boundary.

C—68 to 80 inches; very pale brown (10YR 8/3) loamy sand; common thin strata of sandy loam; common

medium prominent brownish yellow (10YR 6/6) mottles; weak fine granular structure; very friable; very strongly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction is strongly acid or very strongly acid.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. The texture is loamy fine sand or loamy sand. The horizon is 4 to 7 inches in thickness.

The E horizon, where present, has hue of 10YR, value of 4 or 5, and chroma of 3. It is loamy fine sand or loamy sand. It is as much as 15 inches thick.

The BE horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 4. It is fine sandy loam. It is as much as 7 inches thick.

The Bt horizon has hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 4 to 8. It is fine sandy loam or sandy clay loam. It is 24 to 48 inches in thickness.

The BC horizon has hue of 10YR, value of 7 or 8, and chroma of 1 to 6. It is loamy fine sandy, loamy sand, fine sand, or sand and may contain thin strata of sandy loam.

The C or 2C horizon, where present, has the same range in colors as the BC horizon. It is sand, loamy sand, sandy loam, or sandy clay loam and is commonly stratified.

Foxworth Series

The Foxworth series consists of very deep, moderately well drained soils that formed in thick beds of sandy sediments. These soils are in broad, low areas on the uplands and on low ridges in areas of flatwoods. Slopes range from 0 to 5 percent. The soils of the Foxworth series are thermic, coated Typic Quartzipsamments.

Foxworth soils are associated with Alpin, Chipley, and Resota soils. Alpin soils do not have a water table within a depth of 6 feet. Chipley soils have a high water table between depths of 24 and 36 inches. Alpin soils are in the higher positions, and Chipley soils are in the lower positions. Resota soils have a Bw horizon within a depth of 40 inches.

Typical pedon of Foxworth sand, 0 to 5 percent slopes; 3,500 feet north and 2,750 feet west of the southeast corner of sec. 18, T. 2 N., R. 12 E.

Ap—0 to 7 inches; dark brown (10YR 4/3) sand; weak fine granular structure; very friable; many fine and medium roots throughout; very strongly acid; clear wavy boundary.

C1—7 to 20 inches; yellowish brown (10YR 5/6) sand; single grained; loose; many fine and medium roots; very strongly acid; gradual wavy boundary.

C2—20 to 43 inches; brownish yellow (10YR 6/6) sand; single grained; loose; common fine and medium roots; very strongly acid; clear wavy boundary.

C3—43 to 55 inches; brownish yellow (10YR 6/6) sand; common medium distinct yellowish brown (7.5YR 5/8) mottles; single grained; loose; common fine roots throughout; very strongly acid; diffuse smooth boundary.

C4—55 to 67 inches; very pale brown (10YR 7/4) sand; common medium prominent strong brown (7.5YR 5/8) and yellowish red (5YR 5/8) mottles; single grained; few fine roots; very strongly acid; gradual wavy boundary.

C5—67 to 80 inches; white (10YR 8/2) sand; common medium distinct yellowish red (5YR 5/6), strong brown (7.5YR 5/8), brownish yellow (10YR 6/6), yellowish brown (10YR 5/6), and pale brown (10YR 7/3) mottles; weak fine granular structure; very friable; very strongly acid.

The combined thickness of the sand layers is 80 inches or more. Reaction is very strongly acid to moderately acid. The content of silt plus clay between depths of 10 and 40 inches is 5 to 10 percent.

The A or Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3.

The upper part of the C horizon has hue of 10YR, value of 5 to 7, and chroma of 4 to 8. The quantity of pockets of uncoated sand ranges from none to common.

The lower part of the C horizon has hue of 10YR, value of 6 to 8, and chroma of 1 to 4. It has few or common mottles in shades of yellow, gray, brown, or red. It is sand, fine sand, or loamy sand.

Goldhead Series

The Goldhead series consists of very deep, poorly drained soils that formed in thick beds of sandy and loamy sediments. These soils are in lowland positions on the uplands and on the slopes near drainageways. Slopes range from 0 to 5 percent. The soils of the Goldhead series are loamy, siliceous, thermic Arenic Endoaqualfs.

Goldhead soils are associated with Bivans and Wampee soils. Bivans soils have a Bh horizon above a depth of 20 inches and are in the steeper areas. Wampee soils are somewhat poorly drained and are in the slightly higher positions.

Typical pedon of Goldhead fine sand; 4,800 feet

north and 3,800 feet west of the southeast corner of sec. 9, T. 2 N., R. 11 E.

A—0 to 2 inches; black (10YR 2/1) fine sand; moderate medium granular structure; very friable; many medium, fine, and very fine roots; very strongly acid; gradual wavy boundary.

AE—2 to 4 inches; dark gray (10YR 4/1) fine sand; moderate fine granular structure; very friable; common medium and fine roots; strongly acid; gradual wavy boundary.

Eg1—4 to 24 inches; light gray (10YR 7/2) fine sand; few coarse distinct very dark grayish brown (10YR 3/2) mottles; weak fine granular structure; very friable; few fine roots; strongly acid; gradual wavy boundary.

Eg2—24 to 36 inches; light gray (10YR 7/2)fine sand; few medium distinct dark grayish brown (10YR 4/2) mottles; weak fine granular structure; very friable; strongly acid; abrupt smooth boundary.

Btg1—36 to 45 inches; dark gray (10YR 4/1) sandy loam; many fine prominent reddish yellow (7.5YR 6/8) mottles; weak fine subangular blocky structure; firm; slightly acid; gradual wavy boundary.

Btg2—45 to 80 inches; dark gray (10YR 4/1) sandy clay loam; few fine distinct dark reddish brown (5YR 3/3) mottles in the upper part; few medium distinct greenish gray (5GY 6/1), common medium distinct grayish green (5G 5/2), and common coarse prominent yellow (5YR 7/6) mottles in the lower part; moderate medium subangular blocky structure; very firm; about 10 percent chert; slightly acid.

The solum is more than 60 inches thick. Reaction ranges from extremely acid to slightly acid in the A horizon and from very strongly acid to moderately alkaline below the A horizon. The content of silica-cemented pebbles and cobbles ranges from 0 to 20 percent in the A and E horizons.

The A and AE horizons have hue of 10YR, value of 2 to 4, and chroma of 1. The texture is sand or fine sand.

The Eg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. In some pedons it has mottles in shades of brown, yellow, or gray. It is sand or fine sand.

The Btg horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. It has mottles in shades of yellow, gray, or brown. The texture ranges from fine sandy loam to clay. Clay textures are dominantly below a depth of 60 inches. The content of weathered limestone nodules and fragments ranges from 0 to 20 percent in the Btg horizon.

Kenansville Series

The Kenansville series consists of very deep, well drained soils that formed in sandy and loamy sediments. These soils are on uplands and stream terraces. Slopes range from 0 to 5 percent. The soils of the Kenansville series are loamy, siliceous, thermic Arenic Hapludults.

Kenansville soils are associated with Bigbee, Blanton, Eunola, Lowndes, Valdosta, and Wahee soils. The moderately well drained Bigbee soils are sandy throughout. Blanton soils are in the slightly lower positions. Eunola soils have a Bt horizon within a depth of 20 inches. Lowndes soils are bisequual. Valdosta soils are sandy to a depth of more 40 inches. Lowndes and Valdosta soils are in landscape positions similar to those of the Kenansville soils. Wahee soils are somewhat poorly drained and are clayey.

Typical pedon of Kenansville loamy sand, 0 to 5 percent slopes; 3,100 feet north and 3,500 feet west of the southeast corner of sec. 5, T. 2 N., R. 11 E.

Ap—0 to 9 inches; dark brown (10YR 3/3) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

BE—9 to 23 inches; yellowish brown (10YR 5/6) loamy sand; weak medium granular structure; very friable; common fine roots; strongly acid; gradual wavy boundary.

Bt1—23 to 45 inches; dark yellowish brown (10YR 5/6) sandy loam; moderate medium granular structure; friable; common fine roots; strongly acid; gradual wavy boundary.

Bt2—45 to 58 inches; yellowish brown (10YR 5/8) sandy loam; weak medium granular structure; friable; few 1.5-inch-diameter pebbles; strongly acid; clear wavy boundary.

B/C—58 to 80 inches; light yellowish brown (10YR 6/4) loamy sand; moderate fine granular structure; friable; few 1.5-inch-diameter pebbles; strongly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction ranges from very strongly acid to moderately acid.

The Ap or A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. The texture is sand or loamy sand.

The BE horizon, where present, has hue of 10YR, value of 4 to 6, and chroma of 4 to 6.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 8. It is sandy loam or fine sandy loam. In some pedons it has thin layers of sandy clay loam.

The B part of the B/C horizon has hue of 7.5YR or

10YR, value of 5 or 6, and chroma of 4 to 8. The C part has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. The texture of the B/C horizon is sand or loamy sand.

The C horizon, where present, has the same range in colors as the B/C horizon. The texture is sand or loamy sand.

Lowndes Series

The Lowndes series consists of very deep, well drained soils that formed in sandy and loamy sediments. These soils are on the uplands. Slopes range from 0 to 12 percent. The soils of the Lowndes series are loamy, siliceous, thermic Arenic Paleudults.

Lowndes soils are associated with Blanton, Kenansville, Norfolk, Valdosta, and Wadley soils. Blanton and Wadley soils have loamy subsoil layers below a depth of 40 inches. Also, Blanton soils have a seasonal high water table between a depth of 5 and 6 feet. Kenansville soils have sandy horizons below the subsoil. Norfolk soils have a Bt horizon at a depth of less than 20 inches. Valdosta soils are sandy throughout.

Typical pedon of Lowndes sand, 0 to 5 percent slopes; about 2,700 feet north and 800 feet west of the southeast corner of sec. 6, T. 2 N., R. 11 E.

A—0 to 4 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

E—4 to 33 inches; yellowish brown (10YR 5/4) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

Bt1—33 to 37 inches; strong brown (7.5YR 5/6) sandy loam; weak fine subangular blocky structure; very friable; common fine roots; strongly acid; gradual wavy boundary.

Bt2—37 to 53 inches; strong brown (7.5YR 5/8) sandy loam; weak fine subangular blocky structure; very friable; few fine roots; strongly acid; gradual wavy boundary.

E´—53 to 58 inches; strong brown (7.5YR 5/8) loamy sand; weak medium granular structure; very friable; strongly acid; clear wavy boundary.

B´t1—58 to 74 inches; strong brown (7.5YR 5/8) sandy clay loam; moderate fine subangular blocky structure; firm; strongly acid; gradual wavy boundary.

B´t2—74 to 80 inches; strong brown (7.5YR 5/8) sandy clay loam; common fine distinct light brownish gray (10YR 6/2) mottles; moderate coarse subangular blocky structure; firm; very strongly acid.

The thickness of the solum ranges from 60 to more than 80 inches. The quantity of hard white nodules and small white pockets of kaolinite ranges from none to common. Reaction ranges from very strongly acid to moderately acid throughout the profile.

The A horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3. It is sand, loamy sand, or loamy fine sand.

The E horizon has hue of 10YR and value and chroma of 4 to 6. It is 14 to 31 inches in thickness. It is sand or loamy sand.

The Bt horizon has hue of 7.5YR or 10YR, value of 5, and chroma of 4 to 8; or it has hue of 7.5YR and value and chroma of 4. It is sandy loam or sandy clay loam.

The E´ horizon has the same range in colors as the Bt horizon. It is sand or loamy sand.

The B´t horizon has hue of 5YR to 10YR, value of 5 or 6, and chroma of 4 to 8. It is sandy loam, sandy clay loam, or sandy clay.

Mascotte Series

The Mascotte series consists of very deep, poorly drained soils that formed in sandy and loamy sediments. These soils are in areas of flatwoods. Slopes range from 0 to 2 percent. The soils of the Mascotte series are sandy, siliceous, thermic Ultic Alaquods.

Mascotte soils are associated with Albany, Bivans, Chipley, Dorovan, Pamlico, Plummer, Sapelo, and Surrency soils. Albany soils are somewhat poorly drained and are in the slightly higher positions. Bivans soils have a Bt horizon within a depth of 20 inches. Chipley soils are somewhat poorly drained, do not have a Bt horizon, and are in the slightly higher positions. Dorovan and Pamlico soils are organic. Plummer soils have a Bt horizon below a depth of 40 inches. Pottsburg soils have a Bh horizon below a depth of 50 inches and do not have a Bt horizon. Sapelo soils have a Bt horizon below a depth of 40 inches. Surrency soils are very poorly drained and are in the lower positions.

Typical pedon of Mascotte sand; about 3,800 feet north and 50 feet west of southeast corner of Ga. lot 520, T. 2 N., R. 14 E.

A—0 to 5 inches; black (10YR 2/1) sand; weak fine granular structure; very friable; strongly acid; clear smooth boundary.

E—5 to 13 inches; light brownish gray (10YR 6/2) sand; many medium faint light gray (10YR 7/1) mottles; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

Bh1—13 to 15 inches; very dark brown (10YR 2/2) loamy sand; weak fine subangular blocky structure; friable; sand grains coated with organic matter; common fine roots; very strongly acid; diffuse wavy boundary.

Bh2—15 to 17 inches; dark reddish brown (5YR 3/2) loamy sand; common medium distinct very dark brown (10YR 2/2) weakly cemented Bh bodies; moderate medium granular structure; friable; common fine roots; very strongly acid; diffuse wavy boundary.

E´—17 to 36 inches; light gray (10YR 7/2) sand; few coarse distinct very dark grayish brown (10YR 3/2) pockets; weak fine granular structure; very friable; very strongly acid; abrupt smooth boundary.

Btg—36 to 61 inches; gray (10YR 6/1) fine sandy loam; many fine prominent reddish yellow (7.5YR 6/8) and many medium distinct yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; friable; many concretions 0.25 to 2.0 inches in diameter; very strongly acid; gradual wavy boundary.

Cg—61 to 80 inches; reddish gray (5YR 5/2) fine sand; single grained; loose; very strongly acid.

The thickness of the solum is 60 inches or more. Reaction ranges from extremely acid to strongly acid throughout.

The A or Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1; or it is neutral in hue and has value of 2 to 4.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It is fine sand or sand.

The Bh horizon has hue of 2.5YR to 10YR, value of 2 or 3, and chroma of 2 to 4. It is sand, fine sand, or loamy fine sand.

The E´ horizon, where present, has hue of 10YR, value of 5 to 7, and chroma of 2 to 4. It is sand or fine sand.

The Btg horizon has hue of 2.5Y or 10YR, value of 4 to 7, and chroma of 2 or less. It has mottles in shades of yellow, brown, and red. It is fine sandy loam or sandy clay loam.

The Cg horizon, where present, has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It is sand or fine sand.

Norfolk Series

The Norfolk series consists of very deep, well drained soils that formed in loamy sediments. These soils are on uplands. Slopes range from 0 to 5 percent. The soils of the Norfolk series are fine-loamy, siliceous, thermic Typic Kandiudults.

Norfolk soils are associated with Blanton, Lowndes, Valdosta, and Wampee soils. Blanton soils have loamy subsoil layers between depths of 40 and 80 inches. Lowndes and Wampee soils have loamy subsoil layers between depths of 20 and 40 inches. Also, Wampee soils are somewhat poorly drained. Valdosta soils are sandy throughout. All of the associated soils are in the lower landscape positions.

Typical pedon of Norfolk loamy fine sand, 2 to 5 percent slopes; 3,500 feet north and 2,300 feet west of the southeast corner of sec. 12, T. 1 N., R. 13 E.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/3) loamy fine sand; weak medium granular structure; very friable; common medium, fine, and very fine roots; moderately acid; abrupt wavy boundary.

Bt1—6 to 11 inches; strong brown (7.5YR 5/6) sandy loam; moderate medium granular structure; very friable; common fine and medium roots; very strongly acid; clear wavy boundary.

Bt2—11 to 25 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; common fine and very fine roots; very strongly acid; gradual wavy boundary.

Bt3—25 to 44 inches; strong brown (7.5YR 5/6) sandy loam; moderate fine subangular blocky structure; very friable; few fine and very fine roots; strongly acid; clear wavy boundary.

Bt4—44 to 80 inches; light yellowish brown (10YR 6/4) sandy clay loam; common medium distinct light gray (10YR 7/2) and dark yellowish brown (10YR 4/4) mottles; few fine prominent yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; very strongly acid.

The thickness of the solum is 60 inches or more. The reaction ranges from moderately acid to very strongly acid.

The A or Ap horizon has hue of 2.5Y to 10YR, value of 4 or 5, and chroma of 1 or 2. The texture is loamy fine sand or loamy sand.

The E horizon, where present, has hue of 10YR, value of 4 or 5, and chroma of 3. It is loamy fine sand or loamy sand.

The BE horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 3 or 4.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 to 8, and chroma of 3 to 8. It is sandy loam or sandy clay loam.

The BC horizon, where present, has hue of 7.5YR or 10YR, value of 7, and chroma of 1 to 6. It has mottles in shades of gray, brown, yellow, and red.

The C horizon, where present, has hue of 7.5YR or 10YR, value of 7 or 8, and chroma of 1 to 6. The texture ranges from sand to clay. The C horizon is

typically stratified and mottled in shades of gray and brown.

Ocilla Series

The Ocilla series consists of very deep, somewhat poorly drained soils that formed in sandy and loamy sediments. These soils are on low uplands. Slopes range from 0 to 5 percent. The soils of the Ocilla series are loamy, siliceous, thermic Aquic Arenic Paleudults.

Ocilla soils are associated with Albany, Blanton, Bonneau, Pelham, and Wadley soils. Albany soils are in positions similar to those of the Ocilla soils but have a Bt horizon at a depth of 40 to 80 inches. Blanton and Bonneau soils are moderately well drained. Also, Blanton soils have a Bt horizon at a depth of 40 to 80 inches. Pelham soils are in the lower landscape positions and are poorly drained. Wadley soils are well drained and a have Bt horizon below a depth of 40 inches.

Typical pedon of Ocilla loamy fine sand, 0 to 5 percent slopes; about 2,500 feet north and 4,200 feet west of the southeast corner of sec. 4, T. 2 N., R. 13 E.

A—0 to 10 inches; dark gray (10YR 4/1) loamy fine sand; weak fine granular structure; very friable; common fine roots; strongly acid; gradual wavy boundary.

E1—10 to 21 inches; light yellowish brown (10YR 6/4) loamy fine sand; common medium faint brownish yellow (10YR 6/6) and few large distinct dark brown (10YR 3/3) mottles; moderate medium granular structure; very friable; common uncoated sand pockets; very strongly acid; gradual wavy boundary.

E2—21 to 29 inches; pale yellow (2.5Y 7/4) fine sand; many medium distinct light gray (10YR 7/2) mottles; weak fine granular structure; very friable; very strongly acid; gradual wavy boundary.

E3—29 to 34 inches; light yellowish brown (10YR 6/4) loamy fine sand; common distinct light brownish gray (10YR 6/2) and common fine faint yellowish brown (10YR 5/8) mottles; weak fine subangular blocky structure; friable; about 3 percent plinthite; very strongly acid; gradual wavy boundary.

Bt—34 to 52 inches; coarsely mottled yellowish brown (10YR 5/6), gray (10YR 6/1), and red (2.5YR 4/6) fine sandy loam; moderate fine subangular blocky structure; firm; about 3 percent plinthite; very strongly acid; gradual wavy boundary.

BCg—52 to 80 inches; gray (10YR 5/1) sandy clay loam; common coarse prominent red (10R 4/8) mottles; moderate medium subangular blocky structure; firm; clay films on red faces; very strongly acid.

The thickness of the solum is 60 inches or more. Reaction is very strongly acid or strongly acid throughout.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is fine sand, loamy fine sand, or sand.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 4. It has mottles in shades of gray, brown, yellow, or red. It is sand, fine sand, or loamy fine sand.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 6. It has mottles in shades of yellow, gray, brown, or red. It is fine sandy loam or sandy clay loam.

The BCg horizon, where present, has the same range in colors as the Bt horizon. The texture ranges from sand to clay and has contrasting streaks or pockets in some pedons.

Osier Series

The Osier series consists of very deep, poorly drained soils that formed in sandy sediments. These soils are in broad areas on low river terraces. Slopes range from 0 to 2 percent. The soils of the Osier series are siliceous, thermic Typic Psammaquents.

Osier soils are associated with Plummer and Pottsburg soils. Plummer soils have a Bt horizon. Pottsburg soils are poorly drained and have a Bh horizon.

Typical pedon of Osier sand, occasionally flooded; about 3,145 feet north and 3,075 feet west of southeast corner of sec. 18, T. 1 S., R. 17 E.

A1—0 to 3 inches; very dark brown (10YR 2/2) sand; weak fine granular structure; very friable; many fine roots throughout; strongly acid; clear wavy boundary.

A2—3 to 8 inches; dark grayish brown (10YR 4/2) fine sand; single grained; loose; many fine and common medium roots; very strongly acid; diffuse smooth boundary.

Cg1—8 to 36 inches; light brownish gray (10YR 6/2) fine sand; single grained; loose; few fine roots; common splotches stained with organic matter; very strongly acid; diffuse smooth boundary.

Cg2—36 to 80 inches; light gray (10YR 7/2) fine sand; single grained; loose; common brown streaks stained with organic matter; very strongly acid.

The combined thickness of the sandy layers is 80 inches or more. The content of silt plus clay between

depths of 10 and 40 inches is 5 to 10 percent. Reaction ranges from very strongly acid to moderately acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is sand, fine sand, or loamy fine sand.

The Cg horizon has hue of 10YR, value of 5 to 8, and chroma of 1 or 2. It has few or common mottles in shades of gray, brown, and yellow in most pedons. It is dominantly sand or fine sand but has strata of loamy sand or sandy loam in some pedons.

Otela Series

The Otela series consists of very deep, moderately well drained soils that formed in sandy and loamy sediments. These soils are in broad, low areas on low uplands. Slopes range from 0 to 5 percent. The soils of the Otela series are loamy, siliceous, thermic Grossarenic Paleudalfs.

Otela soils are associated with Alpin and Shadeville soils. Alpin soils are excessively drained and are sandy throughout. Shadeville soils have a Bt horizon at a depth of 20 to 40 inches.

Typical pedon of Otela sand in an area of Otela-Alpin complex, 0 to 5 percent slopes; about 200 feet north and 3,960 feet west of the southeast corner of sec. 18, T. 1 N., R. 12 E.

A—0 to 2 inches; gray (10YR 6/1) sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

E1—2 to 15 inches; light yellowish brown (10YR 6/4) sand; single grained; loose; common fine roots; strongly acid; gradual wavy boundary.

E2—15 to 40 inches; very pale brown (10YR 7/4) sand; common fine distinct yellowish brown (10YR 5/8) mottles; single grained; loose; common uncoated sand grains; few fine roots; strongly acid; gradual wavy boundary.

E3—40 to 52 inches; white (10YR 8/2) sand; common fine distinct light yellowish brown (10YR 6/4) lamella; weak fine granular structure; very friable; slightly acid; clear wavy boundary.

Bt—52 to 60 inches; reddish yellow (10YR 6/6) sandy clay loam; common fine distinct red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; slightly alkaline; abrupt wavy boundary.

Btg—60 to 80 inches; gray (10YR 6/1) clay; common medium prominent reddish yellowish (5YR 6/6) clay strata; massive; slightly sticky; about 5 percent white (10YR 8/2) soft limestone nodules; 10 percent gravel-sized siliceous pebbles; moderately alkaline.

The thickness of the solum is 60 to more than 80 inches. Reaction ranges from very strongly acid to neutral in the A and E horizons and from strongly acid to moderately alkaline in the B horizon. The content of pebbles and limestone nodules ranges from 0 to 10 percent at a depth of 60 to 80 inches.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2.

The E horizon has hue of 10YR. It has value of 5 to 7 and chroma of 2 to 8 or has value of 8 and chroma of 1 to 3. It has mottles in shades of yellow or brown. It has common uncoated sand splotches in some pedons. It is sand or fine sand.

The EB horizon, where present, has hue of 10YR, value of 5 to 7, and chroma of 2 to 8.

The Bt horizon has hue of 10YR, value of 5 to 8, and chroma of 3 to 8. It is sandy loam or sandy clay loam. Limestone bedrock underlies this horizon in some pedons.

The Btg or 2Btg horizon, where present, has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2; or it is neutral in hue and has value of 5 to 7. The quantity of redoximorphic features in shades of gray, yellow, brown, or red ranges from none to many. The Btg horizon is sandy loam, fine sandy loam, sandy clay loam, or sandy clay. The 2Btg horizon is sandy clay or clay. In some pedons the lower part of the horizon has about 5 percent pebble- or cobble-sized fragments of limestone or chert.

Pamlico Series

The Pamlico series consists of very deep, very poorly drained soils composed mostly of partially decomposed organic materials overlying sandy and loamy sediments. These soils are in swamps and depressions. The soils of the Pamlico series are sandy or sandy-skeletal, siliceous, dysic, thermic Terric Medisaprists.

Pamlico soils are associated with Chipley, Dorovan, Mascotte, Pelham, Plummer, Pottsburg, and Surrency soils. All of the associated soils, except the Dorovan soils, are mineral soils. Chipley soils are somewhat poorly drained. Dorovan soils have organic layers with a combined thickness of more than 51 inches. Mascotte and Pottsburg soils have a Bh horizon. Mascotte, Pelham, Plummer, and Pottsburg soils are poorly drained. Surrency soils have a loamy subsoil and are in the lower landscape positions. All of the other associated soils are in the higher landscape positions.

Typical pedon of Pamlico muck, depressional; 1,000 feet north and 1,500 feet west of the southeast corner of sec. 16, T. 2 N., R. 12 E.

Oa1—0 to 7 inches; dark brown (7.5YR 3/2) muck consisting of partially decomposed leaves, twigs, roots, and stems; 15 percent fiber after rubbing; slightly sticky; extremely acid; gradual wavy boundary.

Oa2—7 to 25 inches; black (10YR 2/1) muck; 20 percent fiber unrubbed, 10 percent rubbed; massive; sticky; common partially decomposed wood fragments; extremely acid; gradual wavy boundary.

Cg1—25 to 42 inches; grayish brown (10YR 5/2) sand; weak medium granular structure; very friable; extremely acid; clear wavy boundary.

Cg2—42 to 80 inches; dark gray (10YR 4/1) loamy fine sand; friable; few pockets of coarse sand; extremely acid.

The combined thickness of the organic layers ranges from 16 to 51 inches. Reaction ranges from strongly acid to extremely acid.

The Oa horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2. The content of fiber ranges from 10 to 40 percent, unrubbed, and from 5 to 15 percent, rubbed. Common logs and coarse tree and shrub roots are in this horizon.

The Cg horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is sand or loamy fine sand.

The 2Cg horizon, where present, has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 1 or 2. The texture ranges from sandy loam to sandy clay loam.

Pelham Series

The Pelham series consists of very deep, poorly drained soils that formed in sandy and loamy sediments. These soils are in wet, lowland positions on broad flats. Slopes range from 0 to 2 percent. The soils of the Pelham series are loamy, siliceous, thermic Arenic Paleaquults.

Pelham soils are associated with Ocilla, Pamlico, Plummer, Stockade, and Surrency soils. Ocilla soils are in the higher positions and are somewhat poorly drained. Pamlico soils are organic and are very poorly drained. Plummer soils have a Bt horizon at a depth of 40 to 80 inches. Pamlico soils are in swamps and depressions. Stockade soils have a Bt horizon within a depth of 20 inches. Surrency soils are very poorly drained.

Typical pedon of Pelham sand; 4,800 feet north and 3,800 feet west of the southeast corner of sec. 9, T. 2 N., R. 11 E.

Ap—0 to 7 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; very friable; many medium, fine, and very fine roots; strongly acid; clear wavy boundary.

Eg1—7 to 12 inches; dark gray (10YR 4/1) sand; weak fine granular structure; very friable; common medium and fine roots; strongly acid; gradual wavy boundary.

Eg2—12 to 25 inches; grayish brown (10YR 5/2) sand; common medium distinct yellowish brown (10YR 5/4) mottles; weak fine granular structure; very friable; few fine roots; strongly acid; gradual wavy boundary.

Btg1—25 to 32 inches; grayish brown (10YR 5/2) sandy loam; common coarse distinct brown (10YR 5/3) mottles; weak fine subangular blocky structure; friable; strongly acid; clear wavy boundary.

Btg2—32 to 55 inches; gray (10YR 5/1) sandy clay loam; moderate medium subangular blocky structure; friable; strongly acid; gradual wavy boundary.

Btg3—55 to 80 inches; gray (5YR 5/1) sandy clay loam; common fine prominent strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm; strongly acid.

The thickness of the solum is 80 inches or more. Reaction ranges from extremely acid to strongly acid throughout.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 1. It is sand or fine sand.

The Eg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It has mottles in shades of brown, yellow, or gray. It is sand, fine sand, or loamy sand.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It has mottles in shades of yellow, brown, or red. It is sandy loam or sandy clay loam.

Plummer Series

The Plummer series consists of very deep, poorly drained soils that formed in sandy and loamy sediments. These soils are in areas of flatwoods. Slopes range from 0 to 2 percent. The soils of the Plummer series are loamy, siliceous, thermic Grossarenic Paleaquults.

Plummer soils are associated with Bivans, Chipley, Dorovan, Mascotte, Osier, Pamlico, Pelham, Pottsburg, Stockade, and Surrency soils. Bivans soils have a Bt horizon at a depth of less than 20 inches. Chipley soils are somewhat poorly drained, do not have a Bt horizon, and are in the slightly higher landscape positions. Dorovan and

Pamlico soils are organic. Mascotte soils have a Bt horizon at a depth of 20 to 40 inches. Osier soils do not have a Bt horizon. Pelham soils have a Bt horizon at a depth of 20 to 40 inches. Stockade soils have a Bt horizon within a depth of 20 inches. Surrency soils are very poorly drained. Pottsburg soils have a Bh horizon below a depth of 51 inches and do not have a Bt horizon. Mascotte and Pottsburg soils are in positions similar to those of the Plummer soils. Bivans, Dorovan, Osier, Pamlico, Pelham, Stockade, and Surrency soils are in the slightly lower landscape positions.

Typical pedon of Plummer sand; about 1,800 feet north and 2,900 feet west of the southeast corner of sec. 4, T. 2 N., R. 13 E.

A—0 to 9 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; very friable; common fine roots; strongly acid; gradual wavy boundary.

E1—9 to 16 inches; grayish brown (10YR 5/2) sand; weak fine granular structure; very friable; common fine roots; strongly acid; gradual wavy boundary.

E2—16 to 36 inches; light brownish gray (10YR 6/2) sand; single grained; loose; common fine roots; very strongly acid; clear wavy boundary.

E3—36 to 52 inches; light gray (10YR 7/2) sand; single grained; loose; few fine roots; strongly acid; abrupt wavy boundary.

Btg1—52 to 58 inches; light brownish gray (10YR 6/2) sandy loam; weak medium subangular blocky structure; friable; common fine roots; very strongly acid; gradual wavy boundary.

Btg2—58 to 70 inches; light gray (10YR 7/1) sandy clay loam; common coarse prominent yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

Btg3—70 to 80 inches; light gray (10YR 7/2) sandy clay loam; common coarse distinct yellowish brown (10YR 5/4) mottles; moderate medium subangular blocky structure; friable; very strongly acid.

The thickness of the solum is 70 inches or more. Reaction ranges from extremely acid to strongly acid throughout.

The A or Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It is fine sand or sand.

The Btg horizon has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It has few to many mottles in shades of brown and yellow. It is sandy loam or sandy clay loam.

Pottsburg Series

The Pottsburg series consists of very deep, poorly drained soils that formed in sandy sediments. These soils are in areas of flatwoods. Slopes range from 0 to 2 percent. The soils of the Pottsburg series are sandy, siliceous, thermic Grossarenic Alaquods.

Pottsburg soils are associated with Chipley, Dorovan, Osier, Pamlico, Plummer, and Sapelo soils. Chipley soils are in the slightly higher landscape positions, do not have a Bh horizon, and are somewhat poorly drained. Dorovan and Pamlico soils are organic. Osier soils are sandy to a depth of 80 inches or more. Plummer soils have sandy surface and subsurface layers with a combined thickness of more than 40 inches. Sapelo soils have a Bt horizon at a depth of more than 40 inches.

Typical pedon of Pottsburg sand; about 3,100 feet north and 5,100 feet west of the southeast corner of sec. 5, T. 2 N., R. 12 E.

A—0 to 7 inches; very dark gray (10YR 3/1) sand; weak fine granular structure; very friable; many fine and medium roots throughout; extremely acid; clear wavy boundary.

E1—7 to 19 inches; dark grayish brown (10YR 4/2) sand; common medium distinct light gray (10YR 6/1) and yellowish brown (10YR 5/6) mottles; single grained; loose; common fine and medium roots throughout; very strongly acid; clear wavy boundary.

E2—19 to 30 inches; light brownish gray (10YR 6/2) sand; common medium prominent strong brown (7.5YR 5/6) mottles; single grained; loose; common fine roots throughout; very strongly acid; clear wavy boundary.

E3—30 to 51 inches; light brownish gray (10YR 6/2) sand; many coarse prominent white (10YR 8/2), many medium distinct yellowish brown (10YR 5/6), and common medium distinct dark reddish brown (5YR 3/2) mottles; single grained; loose; very strongly acid; clear wavy boundary.

EB—51 to 65 inches; grayish brown (10YR 5/2) loamy sand; common medium faint dark grayish brown (10YR 4/2) mottles; single grained; loose; common fine and medium irregular dark brown (10YR 3/3) nodules; very strongly acid; clear wavy boundary.

Bh—65 to 80 inches; dark reddish brown (5YR 3/2) sand; common coarse faint black (10YR 2/1) mottles; weak fine subangular blocky structure; friable; very strongly acid.

The thickness of the solum is 80 inches or more. Depth to the Bh horizon is 51 inches or more. Reaction ranges from extremely acid to slightly acid in

the A and E horizons and from extremely acid to moderately acid in the Bh horizon.

The A horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2.

The upper part of the E horizon has hue of 10YR, value of 4 to 7, and chroma of 1 to 3. The lower part has hue of 10YR or 2.5Y, value of 5 to 8, and chroma of 1 or 2. The E horizon is mottled in shades of gray, yellow, and brown.

Some pedons have a transitional EB, BE, or B/E horizon between the E horizon and the Bh horizon. The transitional horizon is sand, fine sand, loamy sand, or loamy fine sand. In some pedons it has discontinuous lenses of spodic bodies that are thinly to moderately coated with colloidal organic matter.

The Bh horizon has hue of 5YR or 10YR, value of 2 or 3, and chroma of 1 or 2; or it has hue of 7.5YR, value of 3 to 5, and chroma of 2 to 4. The sand grains are well coated with organic matter.

Resota Series

The Resota Series consists of very deep, moderately well drained, very rapidly permeable soils that formed in thick beds of sandy marine deposits. These soils are on broad ridges. Slopes range from 0 to 2 percent. The soils of the Resota series are thermic, uncoated Spodic Quartzipsamments.

Resota soils are associated with Bigbee and Blanton soils. The excessively drained Bigbee soils are in the higher positions along stream channels. Blanton soils are in the slightly higher positions and are grossarenic.

Typical pedon of the Resota fine sand, in an area of Resota-Blanton-Bigbee complex, occasionally flooded; about 4,000 feet north and 2,500 feet west of the southeast corner of sec. 8, T. 2 N., R. 11 E.

A—0 to 5 inches; gray (10YR 6/1) fine sand; single grained; loose; many fine and medium roots; salt-and-pepper appearance when dry; strongly acid; clear smooth boundary.

E—5 to 25 inches; white (10YR 8/1) fine sand; single grained; loose; few medium roots; moderately acid; abrupt wavy boundary.

Bw1—25 to 40 inches; yellowish brown (10YR 5/6) fine sand; single grained; loose; strongly acid; gradual smooth boundary.

Bw2—40 to 50 inches; yellowish brown (10YR 5/6) fine sand; single grained; loose; common fine distinct brownish yellow (10YR 6/6) masses of iron accumulation; strongly acid; gradual smooth boundary.

C—50 to 80 inches; very pale brown (10YR 8/4) fine sand; single grained; loose; few fine and medium distinct light gray (10YR 7/1) areas of iron depletions; slightly acid.

The combined thickness of the sand layers is more than 80 inches. Reaction ranges from extremely acid to slightly acid. Texture is sand or fine sand throughout the profile.

The A horizon has hue of 10YR, value of 4 to 6, and chroma of 2 or less. A mixture of dark organic matter and light gray uncoated sand grains gives the surface a salt-and-pepper appearance.

The E horizon has hue of 10YR, value of 6 to 8, and chroma of 2 or less.

The Bw horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 8. It has few or common yellowish or reddish masses of iron accumulation below a depth of 40 inches. Some pedons have thin discontinuous Bh bodies at the base of the E horizon and surrounding tongues of E material.

The C horizon has hue of 10YR, value of 6 to 8, and chroma of 1 to 4. It has few or common redoximorphic features in shades of yellow, brown, red, or gray.

Sapelo Series

The Sapelo series consists of very deep, poorly drained soils that formed in sandy and loamy sediments. These soils are in areas of flatwoods. Slopes range from 0 to 2 percent. The soils of the Sapelo series are sandy, siliceous, thermic Ultic Alaquods.

Sapelo soils are associated with Mascotte, Pottsburg, and Surrency soils. Mascotte soils have a Bt horizon at a depth of 20 to 40 inches. Pottsburg soils have a Bh horizon below a depth of 50 inches and do not have a Bt horizon. Mascotte and Pottsburg soils are in landscape positions similar to those of the Sapelo soils. Surrency soils are in the slightly lower landscape positions and are very poorly drained.

Typical pedon of Sapelo sand; about 500 feet north and 4,900 feet west of the southeast corner of Ga. lot 227, T. 2 N., R. 13 E.

A—0 to 7 inches; black (10YR 2/1) sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

E1—7 to 10 inches; gray (10YR 5/1) sand; many medium faint light gray (10YR 7/1) mottles; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

E2—10 to 19 inches; gray (10YR 6/1) sand; single grained; loose; common fine roots; very strongly acid; abrupt wavy boundary.

Bh1—19 to 24 inches; very dark brown (10YR 2/2)

sand; weak fine subangular blocky structure; friable; organic matter coated sand grains; common fine roots; very strongly acid; diffuse wavy boundary.

Bh2—24 to 28 inches; dark yellowish brown (10YR 4/4) sand; common medium distinct very dark brown (10YR 2/2) weakly cemented Bh bodies; moderate medium granular structure; friable; common fine roots; very strongly acid; diffuse wavy boundary.

E´1—28 to 34 inches; very pale brown (10YR 7/4) sand; common medium distinct dark brown (10YR 4/4) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

E´2—34 to 48 inches; pale brown (10YR 6/3) sand; common coarse distinct yellowish brown (10YR 5/4) mottles; single grained; loose; very strongly acid; gradual wavy boundary.

Btg1—48 to 58 inches; light gray (10YR 7/2) sandy clay loam; common medium faint pale brown (10YR 6/3) and common medium prominent strong brown (7.5YR 5/6) mottles; weak fine subangular block structure; friable; very strongly acid; gradual wavy boundary.

Btg2—58 to 80 inches; light brownish gray (10YR 6/2) sandy clay loam; many medium prominent strong brown (7.5YR 5/6 and 5/8) and brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; slightly sticky; very strongly acid.

The thickness of the solum is 70 inches or more. Reaction ranges from extremely acid to strongly acid throughout.

The A or Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2.

The E horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. It is fine sand or sand.

The Bh horizon has hue of 5YR to 10YR and value and chroma of 2 to 4. It is sand, fine sand, or loamy sand.

The E´ horizon, where present, has hue of 10YR, value of 5 to 8, and chroma of 1 to 4. It is sand or fine sand.

The Btg horizon has hue of 7.5Y to 10YR, value of 5 to 7, and chroma of 2 or less. In some pedons it has mottles in shades of yellow, brown, and red. It is fine sandy loam or sandy clay loam.

Shadeville Series

The Shadeville series consists of very deep, moderately well drained soils that formed in sandy and loamy sediments. These soils are on broad, low uplands and on broad knolls in areas of flatwoods. Slopes range from 0 to 5 percent. The soils of the Shadeville series are loamy, siliceous, thermic Arenic Hapludalfs.

Shadeville soils are associated with Alpin and Otela soils. Alpin soils are excessively drained. Otela soils have a Bt horizon at a depth of 40 to 80 inches.

Typical pedon of Shadeville sand, in an area of Alpin-Shadeville complex, karst; about 5,000 feet north and 2,000 feet west of the southeast corner of sec. 18, T. 2 N., R. 13 E.

Ap—0 to 3 inches; very dark gray (10YR 3/1) sand; single grained; loose; common fine roots; slightly acid; clear smooth boundary.

E1—3 to 30 inches; pale brown (10YR 6/3) sand; single grained; loose; common fine roots; strongly acid; gradual wavy boundary.

E2—30 to 38 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose; strongly acid; abrupt wavy boundary.

Bt—38 to 72 inches; brownish yellow (10YR 6/6) sandy clay loam; weak fine subangular blocky structure; friable; slightly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction ranges from slightly acid to strongly acid in the A and E horizons and from slightly acid to moderately alkaline in the Bt horizon.

The A or Ap horizon has hue of 10YR, value of 3 to 6, and chroma of 1 to 3. It is fine sand or sand.

The E horizon has hue of 10YR, value of 6 or 7, and chroma of 2 to 4. It is sand or fine sand.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 6 to 8. It is sandy loam or sandy clay loam.

The 2R layer, where present, can have cracks or solution holes or both.

Stockade Series

The Stockade series consists of very deep, poorly drained soils that formed in loamy sediments. These soils are in wet, low positions. Slopes are less than 2 percent. The soils of the Stockade series are fine-loamy, mixed, thermic Typic Umbraqualfs.

Stockade soils are associated with Bivans, Pelham, and Plummer soils. Bivans soils have a Bt horizon of sandy clay. Pelham soils have sandy A and E horizons with a combined thickness of 20 to 40 inches over a loamy Bt horizon. Pelham soils are in landscape positions similar to those of the Stockade soils. Plummer soils have sandy surface and subsurface layers with a combined thickness of more than 40 inches.

Typical pedon of Stockade fine sandy loam; 2,640

feet north and 500 feet west of the southeast corner of sec. 14, T. 1 N., R. 13 E.

Ap—0 to 10 inches; very dark gray (10YR 3/1) fine sandy loam; moderate medium subangular blocky structure; very friable; slightly sticky and nonplastic; common medium and many fine and very fine roots; very strongly acid; clear wavy boundary.

Btg1—10 to 25 inches; gray (10YR 5/1) and very dark gray (10YR 3/1) sandy clay loam; common fine prominent strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm, sticky and plastic; common moderately thick clay films on faces of peds; very strongly acid; gradual smooth boundary.

Btg2—25 to 44 inches; gray (10YR 5/1) and very dark gray (N 3/0) sandy clay loam; common medium prominent yellowish red (5YR 5/8) mottles; moderate coarse prismatic structure parting to moderate coarse subangular blocky; very firm, sticky and plastic; common moderately thick clay films on faces of peds; very strongly acid; gradual wavy boundary.

Btg3—44 to 54 inches; very dark gray (10YR 3/1) and light gray (5YR 7/2) sandy clay loam; few fine prominent yellowish red (5YR 5/8) mottles; weak coarse prismatic structure parting to moderate coarse angular blocky; very firm, sticky and plastic; few moderately thick clay films on faces of peds; very strongly acid; clear wavy boundary.

Cg—54 to 80 inches; stratified very dark gray (10YR 3/1) and light gray (5Y 7.2) sandy clay loam; few medium prominent yellowish red (5YR 5/6) mottles; weak coarse subangular blocky structure; friable, slightly sticky and slightly plastic; very strongly acid.

The thickness of the solum ranges from 40 to 60 inches. Reaction ranges from very strongly acid to moderately alkaline.

The A or Ap horizon has hue of 10YR, value of 2 or 3, and chroma of 2 or less; or it is neutral in hue and has value of 2 or 3. It is fine sandy loam or loamy fine sand or the mucky analogs of those textures.

The BAg or BEg horizon, where present, has hue of 10YR, value of 4 or 5, and chroma of 1 or 2. It is sandy loam or loamy sand.

The Btg horizon has hue of 10YR or 5Y, value of 3 to 7, and chroma of 1 or 2. It has mottles in shades of yellow, gray, brown, and red. It is sandy clay loam or fine sandy loam.

The BCg horizon, where present, has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. It has mottles in shades of yellow, green, or brown. It is up to 25 inches thick. It is sandy clay loam or fine sandy loam.

The Cg horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2. The texture ranges from sand to clay, sandy clay loam, sandy loam, or loamy sand.

Surrency Series

The Surrency series consists of very deep, very poorly drained soils that formed in sandy and loamy sediments. These soils are in wet depressions on the uplands and in areas of flatwoods. Slopes are 0 to 1 percent. The soils of the Surrency series are loamy, siliceous, thermic Arenic Umbric Paleaquults.

Surrency soils are associated with Dorovan, Mascotte, Pamlico, Pelham, Plummer, and Sapelo soils. Dorovan and Pamlico soils are organic. Mascotte and Sapelo soils have a Bh horizon. Pelham and Plummer soils are poorly drained and do not have an umbric epipedon. Plummer soils have a Bt horizon at a depth of 40 to 80 inches. Mascotte, Sapelo, Pelham, and Plummer soils are in the slightly higher landscape positions. Dorovan and Pamlico soils are in landscape positions similar to those of the Surrency soils.

Typical pedon of Surrency mucky sand, in an area of Plummer and Surrency soils, depressional; 3,100 feet north and 200 feet west of the southeast corner of Ga. lot 520, T. 2 N., R. 14 E.

Oi—4 inches to 0; mat of undecomposed litter consisting mostly of roots and leaves.

A—0 to 10 inches; black (10YR 2/1) mucky sand; weak fine subangular blocky structure; friable; common medium and fine roots; strongly acid; gradual wavy boundary.

Eg—10 to 22 inches; light gray (10YR 7/2) sand; single grained; loose; strongly acid; gradual wavy boundary.

EB—22 to 24 inches; grayish brown (10YR 5/2) loamy sand; moderate medium subangular blocky structure; firm; strongly acid; gradual wavy boundary.

Btg—24 to 48 inches; dark gray (10YR 4/1) fine sandy loam; many medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; very strongly acid; gradual wavy boundary.

BCg—48 to 80 inches; dark gray (5YR 4/1) loamy sand; common medium faint gray (10YR 6/1) mottles; massive parting to weak medium subangular blocky structure; firm; very strongly acid.

The thickness of the solum is 60 to more than 80 inches. Reaction ranges from extremely acid to strongly acid.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1. It is sand, fine sand, mucky sand, or mucky fine sand.

The Eg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. In some pedons it has mottles in shades of brown, yellow, or gray. It is sand, fine sand, or loamy sand.

The EB horizon, where present, has the same range in colors as the Eg horizon. The texture is loamy sand or loamy fine sand. The EB horizon is up to 5 inches thick.

The Btg horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2; or it has hue of 5YR, value of 4 or 5, and chroma of 1 or 2. It has mottles in shades of yellow, brown, or red. It is sandy loam, fine sandy loam, or sandy clay loam.

The BCg horizon, where present, has colors and textures similar to those of the Btg horizon.

Valdosta Series

The Valdosta series consists of very deep, somewhat excessively drained soils that formed in thick beds of sandy sediments. These soils are on the uplands. Slopes range from 0 to 18 percent. The soils of the Valdosta series are sandy, siliceous, thermic Psammentic Paleudults.

Valdosta soils are associated with Blanton, Kenansville, Lowndes, and Norfolk soils. Blanton soils have a loamy Bt horizon and a seasonal high water table below a depth of 40 inches. Kenansville soils are well drained and have a loamy Bt horizon within a depth of 40 inches. Lowndes soils have a loamy Bt horizon at a depth of 20 to 40 inches. Norfolk soils have a Bt horizon at a depth of less than 20 inches. Lowndes soils are in landscape positions similar to those of the Valdosta soils. Blanton soils are in the slightly lower positions.

Typical pedon of Valdosta sand, 0 to 5 percent slopes; 3,100 feet north and 3,500 feet west of the southeast corner of sec. 5, T. 2 N., R. 11 E.

Ap—0 to 9 inches; dark brown (10YR 3/3) sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

Bt1—9 to 23 inches; yellowish brown (10YR 5/6) loamy sand; moderate fine granular structure; very friable; common fine roots; very strongly acid; gradual wavy boundary.

Bt2—23 to 45 inches; dark yellowish brown (10YR 4/6) loamy sand; moderate fine granular structure; very friable; few fine roots; strongly acid; clear wavy boundary.

Bt3—45 to 58 inches; yellowish brown (10YR 5/8) loamy sand; weak fine granular structure; friable; common fine roots; very strongly acid; gradual wavy boundary.

E/B—58 to 80 inches; light yellowish brown (10YR 6/4) sand; yellowish brown sandy loam (10YR 5/8) lamellae (B) about 3 to 5 inches apart and 1 to 2 centimeters in thickness; single grained; loose; weak fine granular structure; very friable; strongly acid.

The thickness of the solum is 80 inches or more. The content of silt plus clay between depths of 10 and 40 inches is 10 to 18 percent. The lamellae are at a depth of 40 to 78 inches. Reaction is very strongly acid to moderately acid throughout.

The A or Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 to 3.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8.

The E part of the E/B horizon has hue of 7.5YR or 10YR, value of 6 to 8, and chroma of 3 or 4. The texture of the E part is sand. In some pedons, the E part has few or common small pockets of light gray or white, clean sand grains. The B part of the E/B horizon consists of lamellae that have hue of 7.5YR or 10YR, value of 5, and chroma of 6 to 8. The texture of the lamellae is loamy sand, loamy fine sand, or sandy loam. The lamellae range from 1 to 3 centimeters in thickness.

Wadley Series

The Wadley series consists of very deep, well drained soils that formed in sandy and loamy sediments. These soils are on sandy uplands. Slopes range from 0 to 12 percent. The soils of the Wadley series are loamy, siliceous, thermic Grossarenic Paleudults.

Wadley soils are associated with Albany, Alpin, Chipley, Lowndes, and Ocilla soils. Albany, Chipley, and Ocilla soils are somewhat poorly drained. Alpin soils are excessively drained. Also, Alpin and Chipley soils do not have a Bt horizon. Lowndes soils have a Bt horizon within a depth of 20 inches. Alpin soils are in the slightly higher landscape positions. All of the other associated soils are in the slightly lower landscape positions.

Typical pedon of Wadley sand, 0 to 5 percent slopes; about 500 feet north and 1,650 feet west of the southeast corner of Ga. lot 203, T. 3 N., R. 11 E.

A—0 to 3 inches; dark grayish brown (10YR 4/2) sand; weak fine granular structure; very friable;

common fine roots; strongly acid; clear wavy boundary.

AE—3 to 6 inches; dark brown (10YR 4/3) sand; weak fine granular structure; very friable; common fine roots; strongly acid; gradual wavy boundary.

E1—6 to 12 inches; light yellowish brown (10YR 6/4) sand; weak fine granular structure; very friable; common uncoated sand grains; few fine roots; strongly acid; gradual wavy boundary.

E2—12 to 20 inches; very pale brown (10YR 7/4) sand; weak fine granular structure; very friable; strongly acid; gradual wavy boundary.

E3—20 to 50 inches; very pale brown (10YR 8/4) sand; weak fine granular structure; very friable; strongly acid; gradual wavy boundary.

E&Bt—50 to 62 inches; very pale brown (10YR 8/4) sand; thin yellowish brown (10YR 5/6) lamellae; weak fine granular structure; very friable; strongly acid; gradual wavy boundary.

Bt1—62 to 75 inches; yellowish brown (10YR 5/8) sandy clay loam; weak fine subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

Bt2—75 to 80 inches; strong brown (7.5YR 5/8) sandy clay loam; few fine faint light brownish gray (10YR 6/2) and very pale brown (10YR 7/3) mottles; weak fine subangular blocky structure; friable; very strongly acid.

The thickness of the solum is 70 inches or more. Reaction ranges from very strongly acid to moderately acid throughout.

The A horizon has hue of 10YR, value of 3 to 6, and chroma of 2 to 4.

The E horizon has hue of 10YR, value of 5 to 8, and chroma of 3 to 6. In some pedons it has thin, discontinuous, horizontal lamellae in the lower part. The lamellae have hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 8.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. In some pedons it has mottles in shades of brown or yellow. It is sandy loam, fine sandy loam, or sandy clay loam.

Wahee Series

The Wahee series consists of very deep, somewhat poorly drained soils that formed in clayey fluvial sediments. These soils are on the flood plains along rivers and creeks. Slopes range from 0 to 5 percent. The soils of the Wahee series are clayey, mixed, thermic Aeric Endoaquults.

Wahee soils are associated with Eunola, Kenansville, and Blanton soils. Eunola soils are loamy and moderately well drained. Kenansville soils have loamy subsoil layers between depths of 20 and 40 inches and are well drained. Blanton soils have loamy subsoil layers between depths of 40 and 80 inches. All of the associated soils are in landscape positions similar to those of the Wahee soils.

Typical pedon of Wahee fine sandy loam, 0 to 4 percent slopes, occasionally flooded; 2,400 feet north and 1,000 feet west of the southeast corner of sec. 23, T. 1 N., R. 12 E.

A—0 to 5 inches; very dark gray (10YR 3/1) fine sandy loam; strong medium granular structure; very friable; common medium, fine, and very fine roots; very strongly acid; clear smooth boundary.

Bt—5 to 22 inches; brown (10YR 5/3) clay; strong medium subangular blocky structure; very firm; common medium prominent dark yellowish brown (10YR 4/6) and common fine faint gray (10YR 6/1) mottles; common fine and very fine roots; strongly acid; clear wavy boundary.

Btg—22 to 56 inches; gray (10YR 6/1) clay; common medium prominent brownish yellow (10YR 6/6) and strong brown (7.5YR 5/8) and common medium distinct brown (10YR 5/3) mottles; moderate medium subangular blocky structure; very firm; few fine and very fine roots; very strongly acid; gradual wavy boundary.

BCg—56 to 80 inches; gray (10YR 6/1) sandy clay loam; common medium prominent strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; friable; very strongly acid.

The thickness of the solum ranges from 40 to more than 60 inches. Reaction ranges from very strongly acid to moderately acid.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. It is fine sandy loam or sandy loam.

The E horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 2 to 4. It is fine sandy loam or sandy loam.

The upper part of the Bt horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 6. It has mottles in shades of gray, yellow, brown, or red. The texture ranges from sandy clay loam to clay. The lower part of the Bt horizon has hue of 10YR to 5Y, value of 4 to 7, and chroma of 2 or less. It has mottles in shades of red, yellow, or brown. The texture ranges from sandy clay to clay.

The BCg horizon has the same range in colors as the Bt horizon. The texture ranges from fine sandy loam to sandy clay. In some pedons the horizon has mottles in shades of red, yellow, and brown.

Wampee Series

The Wampee series consists of very deep, somewhat poorly drained soils that formed in sandy and loamy sediments. These soils are on side slopes on the uplands. Slopes range from 5 to 20 percent. The soils of the Wampee series are loamy, siliceous, thermic Aquic Arenic Hapludalfs.

Wampee soils are associated with Albany, Blanton, Goldhead, Lowndes, and Norfolk soils. Albany and Blanton soils have a Bt horizon at a depth of 40 to 80 inches. Also, Blanton soils are moderately well drained. Goldhead soils are poorly drained and are in the lower landscape positions. Lowndes soils are well drained and are in the higher landscape positions. Norfolk soils have a Bt horizon within a depth of 20 inches.

Typical pedon of Wampee sand, 5 to 8 percent slopes; about 5,000 feet north and 5,000 feet west of the southeast corner of sec. 6, T. 1 N., R. 14 E.

A—0 to 6 inches; dark gray (10YR 4/1) loamy sand; weak fine granular structure; very friable; 10 percent gravel; common fine roots; strongly acid; gradual wavy boundary.

E1—6 to 19 inches; brown (10YR 5/3) sand; weak fine granular structure; very friable; 10 percent gravel; common fine roots; strongly acid; gradual wavy boundary.

E2—19 to 23 inches; pale brown (10YR 6/3) sand; many fine faint light gray (10YR 7/1) mottles; weak fine granular structure; very friable; 10 percent gravel; common uncoated sand grains; few fine and very coarse roots; strongly acid; gradual wavy boundary.

BE—23 to 26 inches; light brownish gray (10YR 6/2) loamy sand; common fine faint yellowish brown (10YR 5/4) mottles; weak fine granular structure; very friable; 10 percent gravel-sized ironstone fragments and weathered phosphatic fragments; strongly acid; clear wavy boundary.

Btg—26 to 51 inches; light brownish gray (10YR 6/2) gravelly sandy clay loam; common fine distinct grayish brown (10YR 5/2) and common fine faint white (10YR 8/1) mottles; weak fine subangular blocky structure; very friable; strongly acid; gradual wavy boundary.

Cg—51 to 80 inches; pale yellow (5Y 7/3) sandy clay; massive; slightly sticky; common coarse pockets of pale yellow (5Y 8/4) sandy loam; slightly acid.

The thickness of the solum is 50 inches or more. Reaction ranges from strongly acid to slightly acid.

The A horizon has hue of 10YR, value of 3 or 4, and chroma of 1 or 2. It is loamy sand, fine sand, or sand.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 6. It has mottles in shades of gray, brown, yellow, or red. It is sand, fine sand, or gravelly sand.

The BE horizon, where present, has hue of 10YR, value of 5 to 7, and chroma of 2 to 6. It is gravelly loamy sand or loamy sand.

The upper part of the Btg horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 to 4. The lower part has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2. The Btg horizon has mottles in shades of yellow, gray, brown, or red. In the upper part, the Btg horizon is sandy loam, sandy clay loam, sandy clay, or the gravelly analogs of those textures. In the lower part, it is sandy loam, sandy clay loam, or sandy clay. The content of coarse fragments, mainly ironstone, quartz gravel, or weathered phosphatic limestone, ranges from 2 to 30 percent.

The Cg horizon, where present, has the same range in colors as the Bt horizon. The texture ranges from loamy sand to clay and has contrasting streaks or pockets in some pedons.

Formation of the Soils

In this section, the factors of soil formation are related to the soils in Hamilton County and the processes of horizon differentiation and the geomorphology of the county are explained.

Factors of Soil Formation

Soil forms through weathering and other processes that act on deposited or accumulated geologic material. The kind of soil that forms depends on the type of parent material; the climate under which soil material has existed since accumulation; the plant and animal life in and on the soil; the relief, or lay of the land; and the length of time that the forces of soil formation have acted on the soil material (Jenny, 1941).

The five soil-forming factors are interdependent; each modifies the effects of the others. Any one of the factors can have more influence than the others on the formation of a soil and can account for most of its properties. For example, if the parent material is only quartz sand, the soil generally has only weakly expressed horizons. In some areas the effect of the parent material is modified greatly by the effects of climate, relief, and plants and animals in and on the soil. As a soil forms, it is influenced by all five factors, but in places one factor can have a dominant effect. A modification or variation in any of these factors results in a different kind of soil.

Parent Material

The soils in Hamilton County formed mainly in marine deposits. These deposits were mostly quartz sand with varying amounts of clay and shell fragments. Clay is more abundant in soils that formed in the sediment on marine terraces and in lagoons, and it is virtually absent on shoreline ridges where most of the deposits are sandy eolian material. The parent material was transported by ocean currents. The ocean covered the survey area a number of times during the Pleistocene age.

The various kinds of parent material in Hamilton County differ somewhat from one another in mineral and chemical composition and in physical structure. The main physical differences, such as those between sand, silt, and clay, can be observed in the field. Other differences, such as mineral and chemical composition, are important to soil formation and affect the present physical and chemical characteristics of the soils. Many differences between soils in the county reflect original differences in the parent material as it was laid down.

Some organic soils are throughout the county. They formed in the partly decayed remains of wetland vegetation.

Climate

Precipitation, temperature, humidity, and wind are the climatic forces that act on the parent material of the soils in Hamilton County. These forces have direct impact on the soil and also have indirect impact on soil formation through their effect on plant and animal life.

The climate of Hamilton County is warm and humid. The Gulf of Mexico and the Atlantic Ocean have moderating effects on temperatures. Inland lakes also moderate temperatures but to a lesser extent. Summer temperatures vary only slightly. In winter, temperatures fluctuate widely, sometimes daily or for several days; however, temperatures do not stay below freezing long enough to freeze the soil. Rainfall averages about 54 inches per year (USDC, 1972). It often occurs as brief, heavy thunderstorms during the summer and as more moderate, lengthy rainfall with the passage of cold fronts in the winter.

Because of the warm climate and abundant rainfall, chemical and biological activity is high. Rainfall leaches many plant nutrients and thus lowers the fertility level of the soils. Over time this process also accounts for the translocation of clay and organic matter, resulting in a sandy surface layer and the formation of a spodic horizon, an argillic horizon, or both.

Plants and Animals

Plant life generally is the principal biological factor affecting soil formation in Hamilton County. Animals, insects, bacteria, and fungi are also important. Plant

and animal life furnish organic matter. Through biological processes, such as leaf drop and death, plants recycle nutrients from varying depths in the soil and deposit nutrients along with organic matter on the surface. Animals also process nutrients and organic matter deposited on the surface.

Soil structure, porosity, and reaction are affected by plants and animals. Tree roots and crayfish, earthworms, and other burrowing organisms commonly improve soil structure and porosity. The breakdown of plant materials commonly influences soil reaction. Pine trees reduce alkalinity in many areas in the county.

Microorganisms, such as bacteria and fungi, help to weather and break down minerals and to recycle organic matter by breaking it down into more basic components and nutrients. These microorganisms generally are more numerous in the surface layer, and their numbers and types decrease with increasing depth. Earthworms and other burrowing or tunneling organisms mix soil material and influence its chemical composition.

Humans have influenced the formation of soils by altering the vegetative community; by cultivating, draining, irrigating, mixing, removing, covering, and compacting the soil; by discharging wastes and chemicals; and by applying pesticides. Some of the effects of these activities are readily apparent. Examples are erosion and improved drainage. Others effects become apparent only after a long time.

Relief

Relief influences soil formation by effecting drainage, erosion, temperature, and plant and animal life.

The four general topographic areas in Hamilton County are scattered large swamps, marshes, and depressions in the northern part of the county; seasonally wet flatwoods throughout the entire county, except the southern and southwestern parts; long, narrow flood plains along the southern, eastern, and western boundaries; and low, rolling areas along the southern and southwestern borders.

The soils in the swamps, marshes, and depressions are covered by water for long periods. The soils in the flatwoods have a water table near the surface during periods of moderate or heavy rainfall. The soils on the flood plains are periodically submerged for brief periods when major drainageways flood. The soils in the low, rolling areas generally do not have a water table near the surface, are extremely dry only during extended periods of low rainfall, and are more susceptible to erosion than the soils in the other topographic areas.

Elevations range from more than 165 feet above sea level near Palestine Lake to less than 45 feet near the junction of the Santa Fe River and Olustee Creek. Internal soil drainage generally is not related to elevation. Even in the low, rolling areas, higher elevation does not necessarily mean better drainage.

Microrelief plays an important part in soil formation. Small rises within depressions and flatwoods and low areas in the uplands commonly support vegetation that differs from that in the surrounding areas. Also, the depth to the seasonal high water table differs.

Time

Most of the factors that influence soil formation require a long time to change the makeup of soils. Some geologic components are more resistant to breakdown and change than others. In Hamilton County, the dominant geologic material is highly resistant to weathering. The sand in the county is almost pure quartz. It is the dominant component in most of the soils.

Relatively little geologic time has elapsed since the material in which the soils in Hamilton County formed emerged from the sea and was laid down. The loamy and clayey horizons formed in place through the process of clay translocation, were deposited by rivers and streams, or were deposited in beds and layers by the sea.

Processes of Horizon Differentiation

The processes involved in the formation of soils and the development of horizons are the deposition and translocation of organic matter; the translocation of iron and aluminum; the deposition of silts and clays; the leaching of calcium carbonates, other bases, and silts; the reduction and transfer of iron and aluminum; and the accumulation of organic matter on the surface.

The deposition and translocation of organic matter in the soil profile can result in the formation of a spodic horizon. This process is caused dominantly by water. Rainfall leaches organic material that has been deposited on the surface into the soil profile.

Iron and aluminum also are leached into the soil profile. They adhere to sand grains, generally in a fluctuating zone of the water table. These materials coat individual sand grains. As development continues, individually coated sand grains begin to adhere to each other. The result is the formation of increasingly

hard bodies. As development further continues, the movement of water is restricted, reducing permeability rates within the spodic horizon. In Hamilton County, organic matter generally is the dominant translocated material, resulting in a black or dark brown color in most spodic horizons. Over time, changes in the water table can result in the formation of spodic horizons at varying depths.

The translocation and deposition of silts and clays are caused by water. Rainfall moving through the soil translocates these soil particles downward. The material is deposited, forming an argillic horizon. Sand grains become coated and bridged. As the argillic horizon continues to form, permeability eventually becomes so restricted that water can be perched above the horizon.

The leaching of carbonates, bases, and silts has occurred in nearly all of the soils in the county. These elements are moved downward through the soils and then out of the profile by rainfall and water movement in the soils. As a result, most of the soils in Hamilton County, except for the soils along the major drainageways, are naturally acid.

Gleying, or the chemical reduction of iron, has occurred in the soils. The parts of a soil profile that are saturated for long periods commonly are gleyed dull gray, yellow, or white or with mottles of varying colors. Many of the better drained soils that are not mottled have brighter colors in shades of yellow to red, indicating iron in the oxidized state. These soils are seldom saturated for extended periods.

The accumulation of organic material in or above the mineral surface layer occurs in all of the soils in Hamilton County. The content of organic matter and thickness of the surface layer depend on drainage and vegetation. In droughty soils that have sparse vegetation, the content of organic matter generally is low because of rapid oxidation of the limited organic deposition. The surface layer of these soils is thin and light colored. The wetter soils support more vegetation. The organic matter in these soils is less oxidized, and the amount of available organic material is increased. As a result, the surface layer is thicker and darker. In very wet soils where water stands above the surface for long periods, oxidation is greatly restricted. As a result, organic matter accumulates above and in the mineral surface layer, forming a very thick, dark mineral surface layer or an organic surface layer (muck). Plowing commonly mixes the dark surface layer with an underlying horizon, resulting in a thicker dark surface layer in some soils.

The formation of concretions or nodules occurs on a limited basis in Hamilton County. These concretions are iron or phosphatic. They occur in a few soils and generally are moderately deep in the profile. Iron concretions or ironstone can result from the accumulation of translocated iron that adheres to form soft to hard, generally gravel-sized fragments. Phosphatic concretions may be the intermediate result of the weathering of soft limestone-phosphatic bedrock from which most of the carbonates have already been leached. These dominantly gravel-sized concretions are soft to firm.

The soil-forming processes have resulted in a succession of layers, or horizons, in the soil. Variations in the kinds of geologic material, in the soil-forming factors, and in the length of time that the soil-forming processes have been active have resulted in the formation of different soils and their associated properties. Soil formation is an ongoing process, and changes can occur in short or long periods of geologic time, depending on the soil-forming processes.

Geomorphology

by Frank R. Rupert, Florida Geological Survey

Hamilton County is situated in the Northern Zone (White, 1970). In Hamilton County, the Northern Zone is divided into two major geomorphic provinces, the Northern Highlands and the topographically lower Gulf Coastal Lowlands. These adjacent provinces are separated by a persistent topographic break called the Cody Scarp (fig. 5). The Cody Scarp is believed to be a relict marine escarpment, originally formed by high-standing Pleistocene seas. The surface elevation of the toe of the Cody Scarp varies between about 75 and 100 feet above MSL (mean sea level) in Hamilton County. In some areas, dissolution of the underlying limestone has lowered the original elevation of the escarpment.

The Northern Highlands province spans northern Florida from the eastern edge of Bradford County, Florida, westward into Alabama. The topographically high, clayey sand hills comprising the zone are thought to be dissected remnants of a much more extensive highland plain that covered much of the Gulf Coastal Plain (White, 1970).

The Northern Highlands occupy most of the eastern and northern portions of Hamilton County. The topography is comprised of gently rolling hills and large, flat, swampy areas. Near surface sediments are predominantly sands and clayey sands. Dissolution of the underlying limestone has modified the terrain in many areas of the county, producing numerous depressions and low, swampy areas called “bays.” Many of these large bays remain wet during the rainy season. Surface elevations vary from about 70 feet

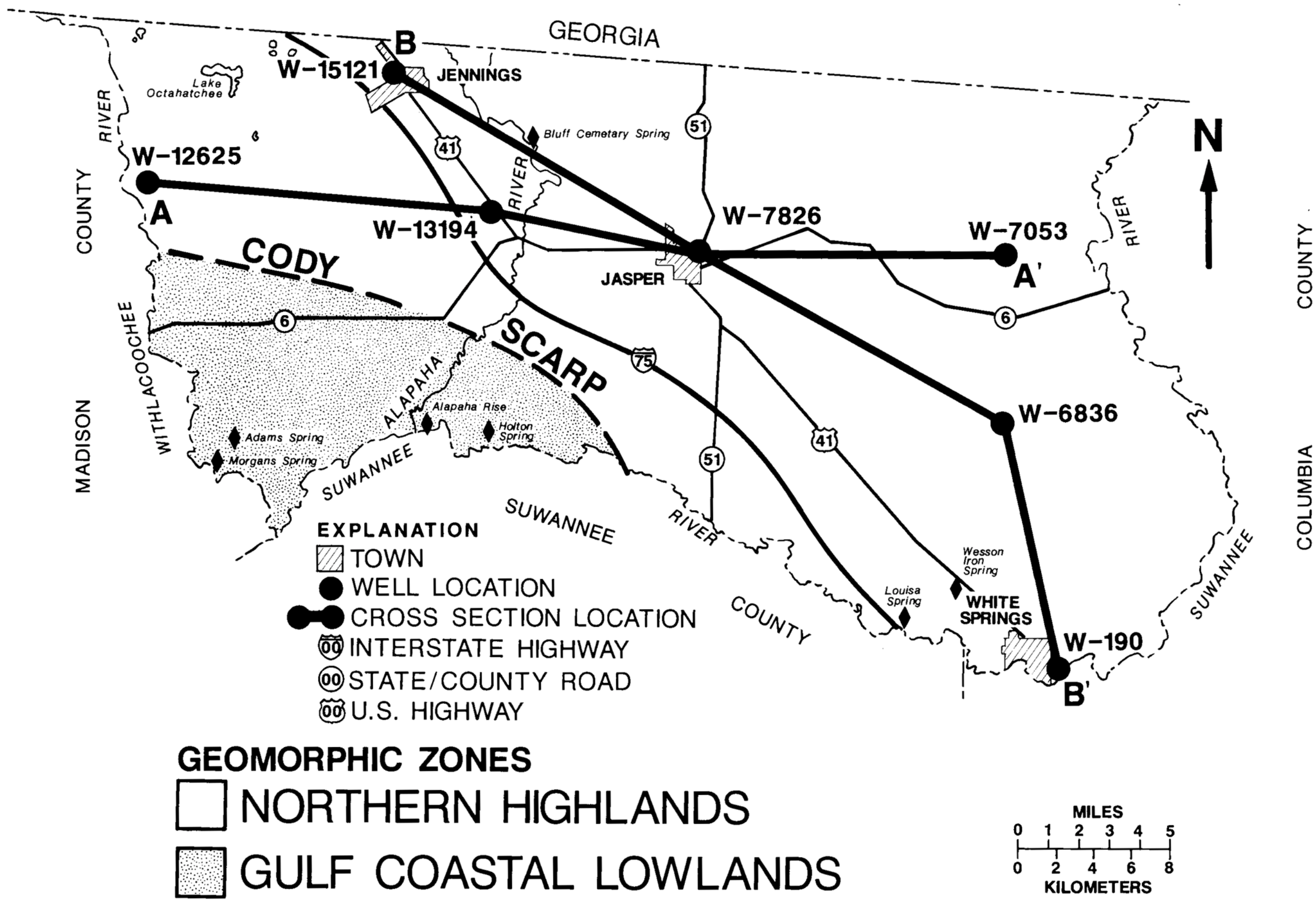

Figure 5.—Location of geomorphic zones and geologic cross sections in Hamilton County.

above MSL at the southern edge of the county to about 160 feet above MSL at the northern and northwestern edges of the county.

The Gulf Coastal Lowlands comprise an area of southwestern Hamilton County south of the Cody Scarp (fig. 5). These topographic lowlands extend from the toe of the Cody Scarp southward to the Gulf of Mexico. Surface elevations range between 50 and 100 feet above MSL. Much of the generally flat, sandy terrain of the lowlands has been modified by karst depressions.

Hamilton County is bounded on the west by the Withlacoochee River and on the south and east by the Suwannee River. The Alapaha River bisects the western part of the county, flowing southwestward. It forms a tributary to the Suwannee River. The valleys of these rivers comprise a geomorphic subzone of the Gulf Coastal Lowlands named the River Valley Lowlands (Ceryak, Knapp, and Burnson, 1982). These valleys are typically incised, and are topographically lower than the surrounding terrain. Elevations of the valley floors range from 50 feet above MSL in the Suwannee River valley to nearly 80 feet above MSL along the northern stretches of the Alapaha and Withlacoochee River valleys. In some portions of these valleys, older geologic formations crop out along the streambanks. The valley floor sediments are comprised principally of Holocene-aged alluvial clay and sand.

Large surface-water features are rare in Hamilton County. Lake Octahatchee, which is in the extreme northwestern corner of the county, is the largest lake. A series of small lakes, many formed in sinkhole depressions, are scattered through the county.

Hamilton County has several major springs, most of which are adjacent to the large rivers. Morgans Spring, Adams Spring, Alapaha Rise, and Holton Spring are in the Gulf Coastal Lowlands and generally have flow rates that vary depending on local precipitation. Bluff Cemetery Spring is along the Alapaha River in the northern part of the county. Louisa Spring, Wesson Iron Spring, and White Springs are near the Suwannee River in the southwestern part of the county. Most of these springs flow from conduits in the

underlying Suwannee Limestone and Ocala Group sediments.

Geology

Hamilton County is underlain by hundreds of feet of marine sands, clays, limestones, and dolomites (Ceryak, Knapp, and Burnson, 1982). The oldest rock penetrated by water wells is limestone of the Middle Eocene-aged (42 to 49 million years before present) Avon Park Formation. Undifferentiated surficial sands and clays of Pleistocene to Holocene age (1.8 million years old and younger) are the youngest sediments present. The Avon Park Formation and the younger, overlying limestone units are important freshwater aquifers. The following discussion of the geology of Hamilton County is confined to these Eocene-aged and younger sediments. Figure 5 shows the locations of the geologic cross sections. Figures 6 and 7 are cross sections illustrating the stratigraphy of the county.

Eocene Series

Avon Park Formation

The Avon Park Formation is typically a dense, tan to dark brown, porous dolomite that is commonly interbedded with tan, gray, or cream-colored limestones and dolomitic limestones of varying hardness (Miller, 1986; Ceryak, Knapp, and Burnson, 1982). Foraminifera are the dominant fossils present, although dolomitization has destroyed or altered many of the fossils. The Avon Park Formation is a component of the Floridan aquifer system. It underlies Hamilton County at depths ranging from 400 to 450 feet below land surface according to Florida Geological Survey in-house well data.

Ocala Group

Upper Eocene-aged (38 to 42 million years old) marine limestones of the Ocala Group unconformably overlie the Avon Park Formation under all of Hamilton

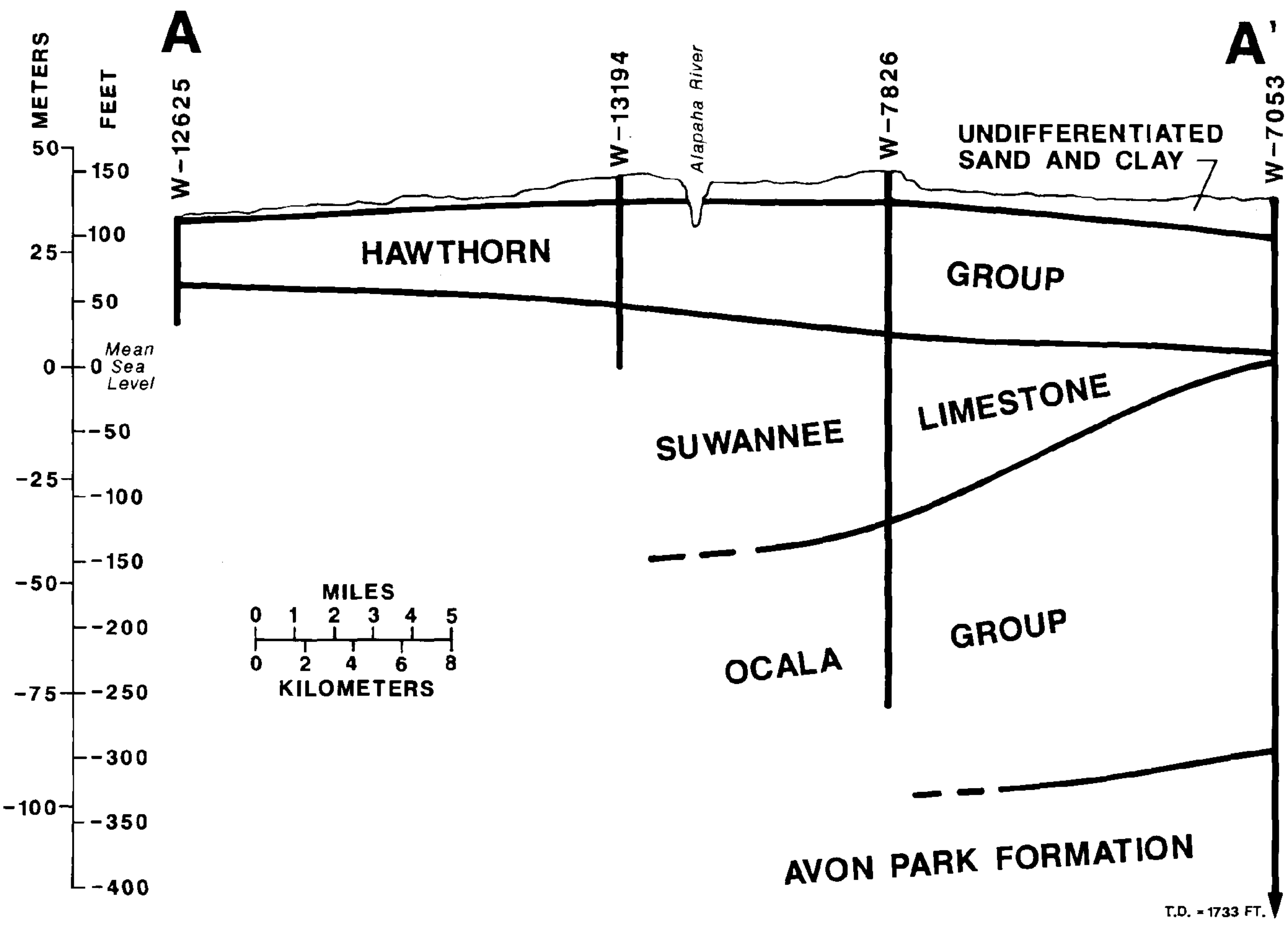

Figure 6.—Cross section of geologic materials at sites A to A´.

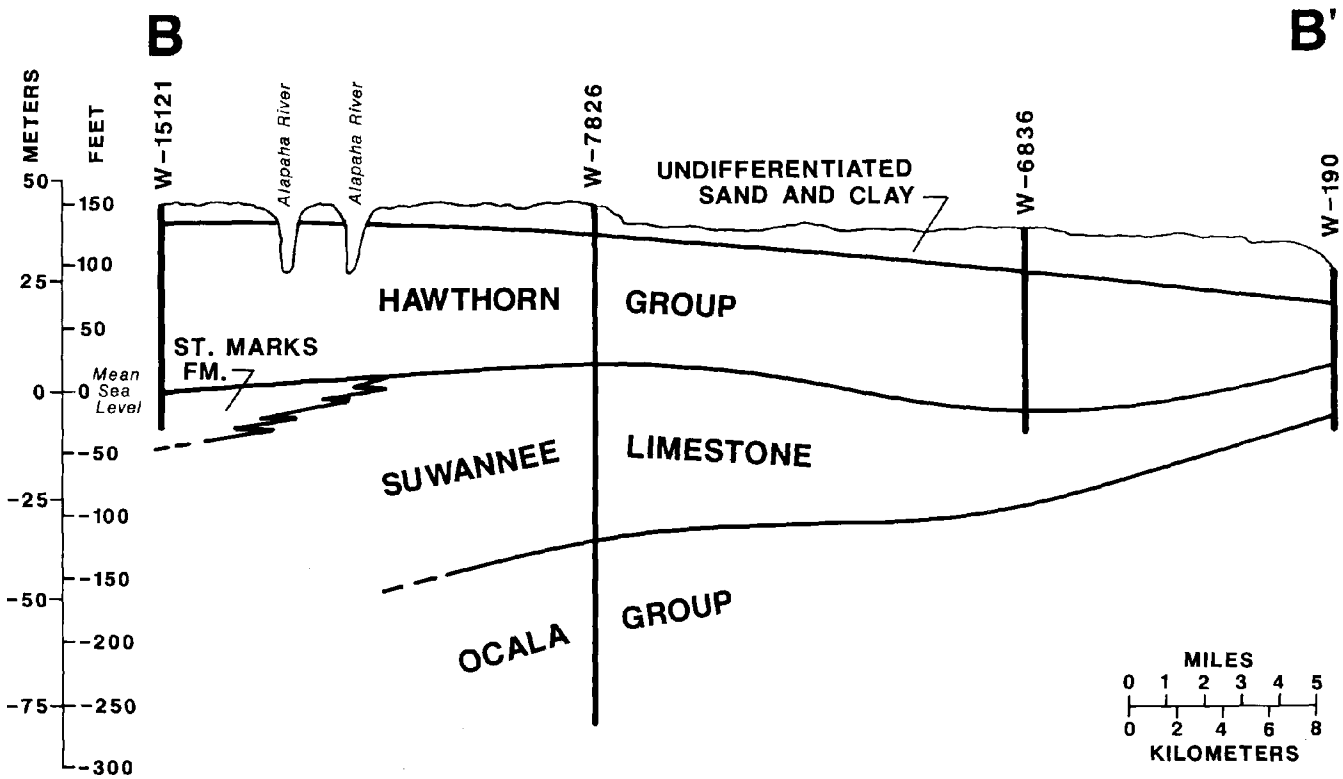

Figure 7.—Cross section of geologic materials at sites B to B´.

County (Puri, 1957; Ceryak, Knapp, and Burnson, 1982). The Ocala Group is comprised of three formations. In ascending order, they are the Inglis Formation, the Williston Formation, and the Crystal River Formation. They are differentiated on the basis of lithology and fossil content.

Typically, the lithology of the Ocala Group grades upward from alternating soft and hard, white to tan fossiliferous limestone and dolomitic limestone in the Inglis Formation and the lower part of the Williston Formation into white to pale orange, abundantly fossiliferous limestones in the upper part of the Williston Formation and the Crystal River Formation. Foraminifera, mollusks, bryozoans, and echinoids are the dominant fossil types in the Ocala Group sediments. The thickness of the Ocala Group sediments under Hamilton County averages about 200 to 300 feet. The depth to the top of the Ocala Group is variable, ranging from about 100 feet to nearly 270 feet. The porous and cavernous nature of the Ocala Group limestones make them important freshwater-bearing units of the Floridan aquifer system. Many wells for drinking water in Hamilton County withdraw water from the Crystal River Formation and the Williston Formation.

Oligocene Series

Suwannee Limestone

The Suwannee Limestone is a Lower Oligocene-aged (33 to 38 million years old), pale orange to white, calcarenitic marine limestone overlying the Ocala Group in most of Hamilton County (Cook and Mansfield, 1936). It typically contains abundant fossils, including foraminifera, mollusks, and echinoids, and it may contain interbedded chert and dolomite beds. In Hamilton County, the depth to the Suwannee Limestone ranges from about 20 feet to nearly 200 feet below land surface. Thickness varies from about 10 to 150 feet. The Suwannee Limestone generally thins to the east and southeast, ultimately pinching out in Columbia and Baker Counties. Except where the overlying St. Marks Formation is present, the Suwannee Limestone is the uppermost unit of the Floridan aquifer system in Hamilton County.

Miocene Series

St. Marks Formation

Scattered erosional remnants of the Lower Miocene-aged (20 to 25 million years old) St. Marks

Formation overlie the Suwannee Limestone in the western part of Hamilton County. The St. Marks Formation is a pale orange to white, sandy, silty, calcilutitic marine limestone, occasionally containing mollusks and foraminifera. It is known in the county from only a few wells in and west of Jasper and along portions of the Alapaha River. It generally occurs in discontinuous units less than 40 feet thick. Where present, it is the uppermost unit of the Floridan aquifer system.

Hawthorn Group

The Hawthorn Group is comprised of a series of Lower Miocene- and Middle Miocene-aged (10 to 25 million years old), generally phosphatic clays, sands, limestones, and dolomites. These sediments unconformably overlie the St. Marks Formation, the Suwannee Limestone, and the Ocala Group. Four formations of the Hawthorn Group are recognized in Hamilton County (Scott, 1985). In ascending order, these are the Penney Farms Formation, the Marks Head Formation, the Coosawhatchee Formation, and the Statenville Formation.

The predominant lithologies in the formations are light gray to olive gray to yellowish gray interbedded sands, clays, and dolostones containing varying quantities of phosphate grains. For the purpose of this report, these formations are collectively included in the Hawthorn Group sediments, as shown in figures 6 and 7. Hawthorn Group sediments are exposed along the banks of the larger streams and rivers bounding the county, particularly the Suwannee River. Throughout the county, the top of the Hawthorn Group is typically less than 50 feet below land surface. The thickness of the Hawthorn Group varies locally from about 30 feet (south of the Cody Scarp) to about 150 feet (in the northern and eastern portions of the county).

The clays of the Hawthorn Group comprise an intermediate confining unit that overlies the Floridan aquifer system. The carbonate units within the Hawthorn Group may serve locally as an intermediate aquifer system.

Pleistocene and Holocene Series

Overlying the Hawthorn Group sediments are a series of Pleistocene- and Holocene-aged (1.8 million years old and younger), undifferentiated quartz sands and clayey quartz sands. Most of these deposits represent relict Pleistocene marine sands and Holocene eolian and alluvial deposits. These undifferentiated sands generally are less than 50 feet thick in Hamilton County.

Ground Water

Ground water is water that fills the pore spaces in subsurface rocks and sediments. In Hamilton County, this water is derived principally from precipitation. The bulk of the consumptive water in the county is withdrawn from ground water aquifers. Three main aquifers are under Hamilton County. In order of increasing depth, they are the surficial aquifer system, the intermediate aquifer system, and the Floridan aquifer system.

The surficial aquifer system is the uppermost freshwater aquifer in the county. This nonartesian aquifer is contained within the undifferentiated Pleistocene and Holocene sands in the eastern and northwestern parts of the county. The areal extent of the surficial aquifer system approximately corresponds to the occurrence of relict Okeefenokee Terrace sands, generally 100 to 170 feet above mean sea level (Ceryak, Knapp, and Burnson, 1982).

The surficial aquifer system is unconfined, and its upper surface is the water table. In general, the water table fluctuates with precipitation and conforms to the topography of the land surface. Recharge of this aquifer is largely through rainfall percolating through the loose surficial sediments and, to a lesser extent, by upward seepage from the underlying intermediate aquifer, transpiration, spring flow, lateral discharge along the Cody Scarp and into topographically low areas, and downward seepage into the intermediate aquifer system (Ceryak, Knapp, and Burnson, 1982).

The intermediate aquifer system underlies the surficial aquifer system in Hamilton County and is largely contained within the sand and carbonate units of the Miocene-aged Hawthorn Group sediments. Permeable beds within the intermediate aquifer system vary considerably in thickness over the areal extent of the aquifer. Where clayey confining beds are absent in the upper Hawthorn Group sediments, the intermediate aquifer system may be recharged by downward seepage from the surficial aquifer system. Likewise, if clay beds or the typical dolomitized limestone beds are absent in the lower Hawthorn Group sediment section, the intermediate aquifer system may be in hydrologic continuity with the underlying Floridan aquifer system. Lateral discharge from the intermediate aquifer system may occur along the Cody Scarp or in areas where streams have cut down into the sediments comprising the unit.

In general, the thickness of the intermediate aquifer system corresponds to the thickness of the Hawthorn Group sediments, ranging from about 30 to 150 feet. The intermediate aquifer system is not used

extensively for consumptive water in Hamilton County. Most wells draw from the deeper Suwannee Limestone or from Ocala Group sediments of the Floridan aquifer system (Ceryak, Knapp, and Burnson, 1982).

The Floridan aquifer system is comprised of hundreds of feet of Eocene- through Miocene-aged marine limestones, including the Avon Park Formation, the Ocala Group, the Suwannee Limestone, and the St. Marks Formation. It is the principal source of drinking water in Hamilton County.

The Floridan aquifer system occurs as an artesian aquifer in the portion of Hamilton County corresponding to the Northern Highlands geomorphic zone. In the Gulf Coastal Lowlands, where the Hawthorn Group sediments are absent or are less than about 50 feet thick, the Floridan aquifer system is generally under nonartesian conditions (Ceryak, Knapp, and Burnson, 1982). The Gulf Coastal Lowlands is a recharge area for the Floridan aquifer system. The depth to the Floridan aquifer system in Hamilton County ranges from about 20 feet below land surface in the southern part of the county to about 250 feet in the northern part. The total thickness of potable water within the Floridan aquifer system is estimated to be about 1,000 feet (Ceryak, Knapp, and Burnson, 1982).

The Floridan aquifer system is recharged in part from seepage from the overlying intermediate aquifer system, locally through sinks and limestone exposures along rivers, and largely from hydrologic continuity with the principal aquifer system to the north in Georgia. Water leaves the Floridan aquifer system through natural movement down-gradient and from the subsequent discharge from springs and through seeps along the River Valley Lowlands.

Mineral Resources

The principal mineral commodities in Hamilton County are sand, clay, limestone, and phosphate. The following discussion summarizes the mining status and potential for each commodity in the county.

A number of shallow private pits are worked for local fill sand and aggregate in Hamilton County. Pleistocene-aged sand deposits occur as thin veneers over Hawthorn Group sediments in much of the region. Because of insufficient local demand for sand products, the potential for commercial mining is low.

Localized deposits of clay and sandy clay are associated with the Pleistocene- and Holocene-aged marine terrace deposits and alluvium and with the Hawthorn Group sediments. Most of the deposits are contained in and interbedded with other sediments. As a result, they are relatively impure. Reserve estimates of the clay deposits in Hamilton County have not been made, and exploitation would depend largely on more extensive exploration and testing and on market demand.

Limestone deposits occur at or near the surface in the southwestern part of Hamilton County on the Gulf Coastal Lowlands and adjacent to the Suwannee River. Most of the near-surface limestone is associated with the Suwannee Limestone and Ocala Group. These deposits are not mined and are largely untested for purity and commercial potential. Future exploitation would depend largely on local demand for such products as limestone road base.

Phosphate is mined in the southeastern part of Hamilton County. One mining area is northwest of White Springs, and another is northeast of White Springs.

The phosphate ore is contained in the Miocene-aged Hawthorn Group sediments. It is extracted with the sand and clayey sand matrix by large draglines. Beneficiation of the phosphate is accomplished through a flotation process that separates the quartz matrix sands and clays from the phosphate ore. The phosphate is used primarily as agricultural fertilizer.

Potential for phosphate mining in the southeastern part of the county remains high. Continued mining depends on worldwide market demand.

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either

through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply of water, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess salts (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to

be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Lamellae. Thin (less than 7.5 centimeters thick) illuvial horizons that have evidence of translocated clay and have more clay than overlying eluvial horizons. Sequences of lamellae can qualify as a cambic horizon if they have a combined thickness of more than 15 centimeters and are not sandy, or they can qualify as an argillic horizon if they have a combined thickness of more than 15 centimeters and the clay increase between the lamellae and eluvial horizons is sufficiently large.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For

example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Potential native plant community. See Climax plant community.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 1 percent
Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Strongly sloping	5 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 percent and higher

Classes for complex slopes are as follows:

Nearly level	0 to 2 percent
Undulating	2 to 5 percent
Rolling	5 to 15 percent
Hilly	15 to 30 percent
Steep	30 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of

coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded at Lake City, Florida, in the period 1957 to 1987)

Month	Temperature: Normal monthly mean	Temperature: Normal daily maximum	Temperature: Normal daily minimum	Normal total precipitation
	^{o}F	^{o}F	^{o}F	In
January	53.6	65.5	41.7	3.75
February	55.5	67.8	43.2	3.89
March	61.9	74.6	49.1	4.24
April	68.2	81.2	55.2	3.46
May	74.2	86.8	61.7	4.64
June	78.9	90.3	67.5	6.71
July	80.8	91.4	70.2	6.77
August	80.7	91.4	70.0	6.99
September	78.1	88.4	67.8	5.68
October	69.6	81.1	58.0	2.35
November	61.2	73.4	48.9	2.28
December	55.1	67.2	43.1	3.48
Yearly:				
Average	68.2	79.9	56.4	---
Total	---	---	---	54.24

Table 2.--Freeze Dates in Spring and Fall

Freeze threshold temperature	Mean date of last spring occurrence	Mean date of first spring occurrence	Mean number of days between dates	Years of record, spring	Number of occurrences in spring	Years of record, fall	Number of occurrences in fall
^{o}F							
32	Feb. 22	Dec. 1	282	29	28	30	25
28	Feb. 5	Dec. 17	315	29	24	30	17
24	Jan. 17	Dec. 25	343	29	14	30	7

Table 3.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
2	Albany fine sand, 0 to 5 percent slopes	27,414	8.3
3	Alpin sand, 0 to 5 percent slopes	33,125	10.0
4	Alpin sand, 5 to 8 percent slopes	1,343	0.4
5	Blanton sand, 0 to 5 percent slopes	17,054	5.1
6	Blanton sand, 5 to 8 percent slopes	3,084	0.9
7	Kenansville fine sand, 0 to 5 percent slopes, occasionally flooded	2,315	0.7
8	Chipley sand, 0 to 5 percent slopes	6,647	2.0
9	Foxworth sand, 0 to 5 percent slopes	5,441	1.6
10	Lowndes sand, 0 to 5 percent slopes	1,959	0.6
11	Lowndes sand, 5 to 8 percent slopes	1,586	0.5
12	Lowndes and Norfolk soils, 8 to 12 percent slopes	421	0.1
13	Mascotte sand	74,409	22.5
14	Pottsburg sand	4,586	1.4
15	Valdosta sand, 0 to 5 percent slopes	9,016	2.7
16	Valdosta sand, 5 to 8 percent slopes	1,906	0.6
17	Wadley sand, 5 to 12 percent slopes	644	0.2
18	Wadley sand, 0 to 5 percent slopes	1,794	0.5
19	Valdosta-Lowndes complex, 12 to 20 percent slopes	334	0.1
20	Pamlico muck, depressional	21,382	6.5
21	Plummer and Surrency soils, depressional	24,705	7.5
22	Alpin fine sand, 0 to 5 percent slopes, occasionally flooded	3,108	0.9
23	Blanton loamy sand, 0 to 5 percent slopes	2,007	0.6
24	Ocilla loamy fine sand, 0 to 5 percent slopes	3,018	0.9
25	Wampee-Blanton complex, 8 to 12 percent slopes	1,023	0.3
26	Mascotte and Plummer soils, occasionally flooded	7,673	2.3
27	Kenansville loamy sand, 0 to 5 percent slopes	641	0.2
28	Wampee loamy sand, 5 to 8 percent slopes	938	0.3
29	Bonneau sand, 0 to 5 percent slopes	1,487	0.4
31	Wampee-Blanton complex, 12 to 20 percent slopes	633	0.2
32	Norfolk loamy fine sand, 2 to 5 percent slopes	1,441	0.4
33	Pelham sand	2,953	0.9
34	Plummer sand	11,791	3.6
35	Wahee fine sandy loam, 0 to 4 percent slopes, occasionally flooded	1,739	0.5
36	Blanton fine sand, 0 to 5 percent slopes, occasionally flooded	1,781	0.5
37	Eunola loamy fine sand, 0 to 5 percent slopes, occasionally flooded	3,312	1.0
46	Stockade fine sandy loam	759	0.2
47	Goldhead fine sand, 0 to 5 percent slopes	764	0.2
48	Bivans loamy sand, 8 to 12 percent slopes	797	0.2
49	Otela-Alpin complex, 0 to 5 percent slopes	969	0.3
51	Bigbee fine sand, undulating, occasionally flooded	2,801	0.8
52	Pelham fine sand, occasionally flooded	3,121	0.9
54	Pits	76	*
56	Bibb-Bigbee complex, undulating, occasionally flooded	1,434	0.4
57	Osier sand, occasionally flooded	286	0.1
58	Sapelo sand	5,686	1.7
59	Dorovan muck, depressional	4,185	1.3
60	Alpin-Shadeville complex, karst	610	0.2
61	Arents, 0 to 5 percent slopes	11,046	3.3
62	Resota-Blanton-Bigbee complex, occasionally flooded	1,307	0.4
63	Arents-Water complex	1,828	0.6
64	Hydraquents, clayey	7,138	2.2
65	Gypsum land	1,454	0.4
66	Urban land	511	0.2
67	Quartzipsamments, 1 to 5 percent slopes	2,341	0.7
W	Water	1,371	0.4
	Total	331,194	100.0

* Less than 0.1 percent.

Table 4.--Land Capability Classes and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Soil name and map symbol	Land capability	Corn	Tobacco	Peanuts	Cotton	Soybeans	Wheat	Bahiagrass
		Bu	Lbs	Lbs	Lbs	Bu	Bu	AUM*
2--------------- Albany	IIIe	75	2,100	1,700	---	20	---	6.5
3--------------- Alpin	IVs	---	1,500	2,000	---	---	---	7
4--------------- Alpin	VIs	---	---	---	---	---	---	7
5--------------- Blanton	IIIs	60	2,000	2,200	---	25	---	6.5
6--------------- Blanton	IVs	50	1,700	2,000	---	20	---	6.5
7--------------- Kenansville	IIIs	70	2,000	2,400	---	---	---	---
8--------------- Chipley	IIIs	50	2,000	2,200	---	20	---	7.5
9--------------- Foxworth	IIIs	---	---	---	---	---	---	7.5
10-------------- Lowndes	IIs	85	2,500	2,800	---	---	---	9.0
11-------------- Lowndes	IIIs	60	1,900	2,200	---	---	---	8.0
12-------------- Lowndes and Norfolk	 IVs IIIe	66	---	2,460	---	---	---	---
13-------------- Mascotte	IIIw	50	---	---	---	20	---	8.0
14-------------- Pottsburg	IVw	---	---	---	---	---	---	7.0
15-------------- Valdosta	IIIs	65	2,200	2,200	---	---	---	9.0
16-------------- Valdosta	IVs	60	1,200	1,600	---	---	---	8.0
17-------------- Wadley	VIs	---	---	---	---	---	---	6.0
18-------------- Wadley	IIIs	55	2,000	1,900	---	24	---	6.5
19-------------- Valdosta- Lowndes	VIIe	---	---	---	---	---	---	5.0

See footnote at end of table.

Table 4.--Land Capability Classes and Yields per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Corn	Tobacco	Peanuts	Cotton	Soybeans	Wheat	Bahiagrass
		Bu	Lbs	Lbs	Lbs	Bu	Bu	AUM*
20-------------- Pamlico	VIIw	---	---	---	---	---	---	---
21--------------		---	---	---	---	---	---	---
Plummer and	VIIw							
Surrency	VIw							
22-------------- Alpin	IVs	---	---	---	---	---	---	8.0
23-------------- Blanton	IIIs	60	2,000	2,200	---	25	---	6.5
24-------------- Ocilla	IIIw	75	2,600	2,200	---	35	---	7.5
25--------------		---	---	---	---	---	---	---
Wampee-	VIs							
Blanton	IVs							
26--------------		---	---	---	---	---	---	6.5
Mascotte and	Vw							
Plummer	IVw							
27-------------- Kenansville	IIs	85	2,400	2,700	550	---	---	---
28-------------- Wampee	IVs	65	---	---	---	30	---	8.5
29-------------- Bonneau	IIs	85	2,600	2,900	700	30	---	8
31-------------- Wampee-Blanton	VIs	---	---	---	---	---	---	6.5
32-------------- Norfolk	IIe	100	2,900	3,700	650	35	55	---
33-------------- Pelham	Vw	---	---	---	---	---	---	---
34-------------- Plummer	IVw	---	---	---	---	---	---	5.0
35-------------- Wahee	IIw	110	---	---	---	45	---	8.0
36-------------- Blanton	IIIs	---	---	---	---	---	---	8.0
37-------------- Eunola	IIw	85	---	---	---	30	---	---
46-------------- Stockade	VIw	---	---	---	---	---	---	11
47-------------- Goldhead	IIIw	---	---	---	---	---	---	7.5

See footnote at end of table.

Table 4.--Land Capability Classes and Yields per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Corn	Tobacco	Peanuts	Cotton	Soybeans	Wheat	Bahiagrass
		Bu	Lbs	Lbs	Lbs	Bu	Bu	AUM*
48-------------- Bivans	VIw	---	---	---	---	---	---	9
49--------------		---	---	2,900	---	---	---	6
Otela-	IIIs							
Alpin	IVs							
51-------------- Bigbee	IIIs	50	---	---	---	---	---	7.5
52-------------- Pelham	Vw	---	---	---	---	---	---	---
54. Pits								
56--------------		86	---	---	---	---	---	---
Bibb-	IIIw							
Bigbee	IVs							
57-------------- Osier	Vw	---	---	---	---	---	---	5.0
58-------------- Sapelo	IIIw	50	---	---	---	20	---	7.5
59-------------- Dorovan	VIIw	---	---	---	---	---	---	---
60--------------		---	---	2,400	---	---	---	7.2
Alpin-	IVs							
Shadeville	VIs							
61. Arents								
62--------------		---	---	---	---	---	---	6.8
Resota-	IVs							
Blanton-	IIIs							
Bigbee	IVs							
63. Arents-Water								
64. Hydraquents								
65. Gypsum land								
66. Urban land								
67. Quartzipsamments								

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Table 5.--Woodland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available.)

Soil name and map symbol	Ordi- nation symbol	Management concerns: Erosion hazard	Equip- ment limita- tion	Seedling mortal- ity	Wind- throw hazard	Plant competi- tion	Potential productivity: Common trees	Site index	Produc- tivity class*	Trees to plant
2------------- Albany	10W	Slight	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	95	10	Loblolly pine, slash pine.
							Slash pine----------	85	11	
							Longleaf pine-------	80	7	
3, 4---------- Alpin	8S	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine-------	85	8	Slash pine, loblolly pine.
							Slash pine----------	90	11	
							Longleaf pine-------	70	6	
							Turkey oak----------	---	---	
							Post oak------------	---	---	
							Blackjack oak-------	---	---	
							Bluejack oak--------	---	---	
5, 6---------- Blanton	11S	Slight	Moderate	Moderate	Slight	Slight	Slash pine----------	90	11	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine-------	85	8	
							Longleaf pine-------	70	6	
							Bluejack oak--------	---	---	
							Turkey oak----------	---	---	
							Southern red oak----	---	---	
							Live oak------------	---	---	
7------------- Kenansville	11S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	90	11	Loblolly pine, slash pine.
							Longleaf pine-------	75	6	
							Loblolly pine-------	85	8	
							Water oak-----------	---	---	
							Hickory-------------	---	---	
							Laurel oak----------	---	---	
8------------- Chipley	11S	Slight	Moderate	Slight	Slight	Moderate	Slash pine----------	90	11	Slash pine, loblolly pine.
							Loblolly pine-------	90	9	
							Longleaf pine-------	80	7	
							Post oak------------	---	---	
							Turkey oak----------	---	---	
							Blackjack oak-------	---	---	
9------------- Foxworth	10S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	80	10	Slash pine.
							Longleaf pine-------	65	5	
							Turkey oak----------	---	---	
							Live oak------------	---	---	
							Post oak------------	---	---	
							Bluejack oak--------	---	---	
							Laurel oak----------	---	---	
10, 11-------- Lowndes	10S	Slight	Moderate	Moderate	Slight	Slight	Slash pine----------	80	10	Slash pine, loblolly pine.
							Loblolly pine-------	80	8	
							Longleaf pine-------	70	6	
12:										
Lowndes------	10S	Slight	Moderate	Moderate	Slight	Slight	Slash pine----------	80	10	Slash pine, loblolly pine.
							Loblolly pine-------	80	8	
							Longleaf pine-------	70	6	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	Trees to plant
12:										
Norfolk------	8A	Slight	Slight	Slight	Slight	Moderate	Loblolly pine-------	84	8	Loblolly pine.
							Longleaf pine-------	77	7	
							Slash pine----------	78	10	
							Southern red oak----	---	---	
							White oak-----------	---	---	
							Yellow-poplar-------	---	---	
							Blackgum------------	---	---	
							Hickory-------------	---	---	
13------------ Mascotte	11W	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	85	11	Slash pine,
							Loblolly pine-------	80	8	loblolly pine.
							Longleaf pine-------	70	6	
14------------ Pottsburg	10W	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	80	10	Slash pine,
							Longleaf pine-------	65	5	longleaf pine,
							Loblolly pine-------	70	6	loblolly pine.
							Live oak------------	---	---	
							Water oak-----------	---	---	
15, 16-------- Valdosta	10S	Slight	Slight	Moderate	Slight	Slight	Slash pine----------	80	10	Slash pine,
							Loblolly pine-------	81	8	loblolly pine,
							Longleaf pine-------	70	6	longleaf pine.
17, 18-------- Wadley	11S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	85	11	Slash pine,
							Longleaf pine-------	79	7	longleaf pine,
							Loblolly pine-------	85	8	loblolly pine,
							Sand pine-----------	75	4	sand pine.
							Live oak------------	---	---	
							Turkey oak----------	---	---	
							Bluejack oak--------	---	---	
19:										
Valdosta-----	10S	Slight	Slight	Moderate	Slight	Slight	Slash pine----------	80	10	Slash pine,
							Loblolly pine-------	81	8	loblolly pine,
							Longleaf pine-------	70	6	longleaf pine.
Lowndes------	10S	Slight	Moderate	Moderate	Slight	Slight	Slash pine----------	80	10	Slash pine,
							Loblolly pine-------	80	8	loblolly pine.
							Longleaf pine-------	70	6	
20------------ Pamlico	4W	Slight	Severe	Severe	Severe	Severe	Pond pine-----------	55	3	Pond pine,
							Baldcypress---------	---	---	water tupelo.
							Water tupelo--------	---	---	
21:										
Plummer------	7W	Slight	Severe	Severe	Slight	Severe	Baldcypress---------	108	7	
							Pond pine-----------	60	3	
							Swamp tupelo--------	---	---	
Surrency-----	10W	Slight	Severe	Severe	Slight	Severe	Loblolly pine-------	95	10	Loblolly pine,
							Slash pine----------	90	11	slash pine,
							Sweetgum------------	90	7	sweetgum,
							Blackgum------------	---	---	American
							Water oak-----------	---	---	sycamore,
							Cypress-------------	---	---	water tupelo.
							Water tupelo--------	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
22------------ Alpin	8S	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine-------	85	8	Slash pine, loblolly pine.
							Slash pine----------	90	11	
							Longleaf pine-------	70	6	
							Turkey oak----------	---	---	
							Post oak------------	---	---	
							Blackjack oak-------	---	---	
							Bluejack oak--------	---	---	
23------------ Blanton	11S	Slight	Moderate	Moderate	Slight	Slight	Slash pine----------	90	11	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine-------	85	8	
							Longleaf pine-------	70	6	
							Bluejack oak--------	---	---	
							Turkey oak----------	---	---	
							Southern red oak----	---	---	
							Live oak------------	---	---	
24------------ Ocilla	8W	Slight	Moderate	Moderate	Slight	Moderate	Loblolly pine-------	85	8	Loblolly pine, slash pine.
							Slash pine----------	90	11	
							Longleaf pine-------	77	7	
25:										
Wampee-------	11W	Slight	Moderate	Slight	Moderate	Moderate	Slash pine----------	90	11	Slash pine, loblolly pine.
							Sweetgum------------	---	---	
							Red maple-----------	---	---	
							American holly------	---	---	
							Laurel oak----------	---	---	
Blanton------	11S	Slight	Moderate	Moderate	Slight	Slight	Slash pine----------	90	11	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine-------	85	8	
							Longleaf pine-------	70	6	
							Bluejack oak--------	---	---	
							Turkey oak----------	---	---	
							Southern red oak----	---	---	
							Live oak------------	---	---	
26:										
Mascotte-----	10W	Slight	Moderate	Moderate	Slight	Severe	Slash pine----------	80	10	Slash pine, loblolly pine.
							Loblolly pine-------	80	8	
							Longleaf pine-------	70	6	
							Laurel oak----------	---	---	
							Water oak-----------	---	---	
Plummer------	11W	Slight	Severe	Severe	Slight	Moderate	Slash pine----------	88	11	Loblolly pine, slash pine.
							Loblolly pine-------	91	9	
							Longleaf pine-------	70	6	
27------------ Kenansville	8S	Slight	Moderate	Moderate	Moderate	Moderate	Loblolly pine-------	80	8	Loblolly pine, slash pine.
							Longleaf pine-------	65	5	
28------------ Wampee	11W	Slight	Moderate	Slight	Moderate	Moderate	Slash pine----------	90	11	Slash pine, loblolly pine.
							Sweetgum------------	---	---	
							Red maple-----------	---	---	
							American holly------	---	---	
							Laurel oak----------	---	---	
29------------ Bonneau	10S	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine-------	95	10	Loblolly pine, longleaf pine.
							Longleaf pine-------	75	6	
							White oak-----------	---	---	
							Hickory-------------	---	---	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordi- nation symbol	Management concerns: Erosion hazard	Equip- ment limita- tion	Seedling mortal- ity	Wind- throw hazard	Plant competi- tion	Potential productivity: Common trees	Site index	Produc- tivity class*	Trees to plant
31:										
Wampee-------	11W	Slight	Moderate	Slight	Moderate	Moderate	Slash pine----------	90	11	Slash pine,
							Sweetgum------------	---	---	loblolly pine.
							Red maple-----------	---	---	
							American holly------	---	---	
							Laurel oak----------	---	---	
Blanton------	11S	Moderate	Moderate	Moderate	Slight	Slight	Slash pine----------	90	11	Slash pine,
							Loblolly pine-------	85	8	loblolly pine,
							Longleaf pine-------	70	6	longleaf pine.
							Bluejack oak--------	---	---	
							Turkey oak----------	---	---	
							Southern red oak----	---	---	
							Live oak------------	---	---	
32------------ Norfolk	8A	Slight	Slight	Slight	Slight	Moderate	Loblolly pine-------	84	8	Loblolly pine.
							Longleaf pine-------	77	7	
							Slash pine----------	78	10	
							Southern red oak----	---	---	
							White oak-----------	---	---	
							Yellow-poplar-------	---	---	
							Blackgum------------	---	---	
							Hickory-------------	---	---	
33------------ Pelham	11W	Slight	Severe	Severe	Slight	Moderate	Slash pine----------	90	11	Slash pine,
							Loblolly pine-------	90	9	loblolly pine.
							Longleaf pine-------	80	7	
							Sweetgum------------	80	6	
							Blackgum------------	80	8	
							Water oak-----------	80	5	
34------------ Plummer	11W	Slight	Severe	Severe	Slight	Moderate	Slash pine----------	88	11	Loblolly pine,
							Loblolly pine-------	91	9	slash pine.
							Longleaf pine-------	70	6	
35------------ Wahee	9W	Slight	Moderate	Moderate	Slight	Severe	Loblolly pine-------	86	9	Loblolly pine,
							Slash pine----------	86	11	slash pine,
							Sweetgum------------	90	7	sweetgum,
							Blackgum------------	---	---	American
							Water oak-----------	---	---	sycamore,
							Swamp chestnut oak--	---	---	water oak.
							Willow oak----------	---	---	
							Southern red oak----	---	---	
36------------ Blanton	11S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine----------	90	11	Slash pine,
							Loblolly pine-------	85	8	loblolly pine,
							Longleaf pine-------	70	6	longleaf pine.
							Bluejack oak--------	---	---	
							Turkey oak----------	---	---	
							Southern red oak----	---	---	
							Live oak------------	---	---	
37------------ Eunola	10W	Slight	Moderate	Slight	Slight	Moderate	Loblolly pine-------	95	10	Loblolly pine,
							Slash pine----------	95	12	slash pine,
							Sweetgum------------	95	8	sweetgum,
							Yellow-poplar-------	95	7	yellow-poplar.

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
46------------ Stockade	10W	Slight	Severe	Severe	Moderate	Severe	Sweetgum------------	100	10	
							Water oak-----------	100	7	
							Blackgum------------	100	12	
							Swamp chestnut oak--	100	---	
							Loblolly pine-------	96	9	
							Pond pine-----------	---	---	
47------------ Goldhead	10W	Slight	Moderate	Severe	Slight	Moderate	Slash pine----------	80	10	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine-------	90	9	
							Longleaf pine-------	65	5	
							Baldcypress---------	---	---	
							Blackgum------------	---	---	
							Cabbage palm--------	---	---	
							Laurel oak----------	---	---	
							Sweetgum------------	---	---	
							Water oak-----------	---	---	
48------------ Bivans	11W	Slight	Moderate	Slight	Slight	Severe	Slash pine----------	90	11	Slash pine, loblolly pine.
							Loblolly pine-------	90	9	
							Longleaf pine-------	80	7	
							Sweetgum------------	---	---	
							Maple---------------	---	---	
							Hickory-------------	---	---	
							Magnolia------------	---	---	
							Water oak-----------	---	---	
							Live oak------------	---	---	
							Laurel oak----------	---	---	
							American holly------	---	---	
49:										
Otela--------	10S	Slight	Moderate	Severe	Slight	Moderate	Slash pine----------	80	10	Slash pine, longleaf pine, loblolly pine.
							Longleaf pine-------	80	7	
							Loblolly pine-------	70	6	
							Live oak------------	---	---	
							Black cherry--------	---	---	
							Southern redcedar---	---	---	
							Turkey oak----------	---	---	
Alpin--------	8S	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine-------	85	8	Slash pine, loblolly pine.
							Slash pine----------	90	11	
							Longleaf pine-------	70	6	
							Turkey oak----------	---	---	
							Post oak------------	---	---	
							Blackjack oak-------	---	---	
							Bluejack oak--------	---	---	
51------------ Bigbee	9S	Slight	Slight	Moderate	Slight	Slight	Loblolly pine-------	88	9	Loblolly pine.
52------------ Pelham	11W	Slight	Severe	Severe	Slight	Moderate	Slash pine----------	90	11	Slash pine, loblolly pine.
							Loblolly pine-------	90	9	
							Longleaf pine-------	80	7	
							Sweetgum------------	80	6	
							Blackgum------------	80	8	
							Water oak-----------	80	5	

See footnote at end of table.

Table 5.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordi-nation symbol	Management concerns: Erosion hazard	Equip-ment limita-tion	Seedling mortal-ity	Wind-throw hazard	Plant competi-tion	Potential productivity: Common trees	Site index	Produc-tivity class*	Trees to plant
56:										
Bibb	11W	Slight	Severe	Severe	Moderate	Severe	Loblolly pine	100	11	Loblolly pine, sweetgum, yellow-poplar, eastern cottonwood.
							Sweetgum	90	7	
							Water oak	90	6	
							Blackgum	---	---	
							Yellow-poplar	---	---	
							Atlantic white cedar	---	---	
Bigbee	9S	Slight	Slight	Moderate	Slight	Slight	Loblolly pine	88	9	Loblolly pine.
57 Osier	11W	Slight	Severe	Severe	Slight	Severe	Slash pine	85	11	Slash pine, loblolly pine.
							Loblolly pine	87	9	
							Longleaf pine	69	5	
58 Sapelo	7W	Slight	Moderate	Moderate	Slight	Moderate	Loblolly pine	77	7	Loblolly pine, slash pine.
							Slash pine	77	10	
							Longleaf pine	65	5	
59 Dorovan	7W	Slight	Severe	Severe	Severe	Severe	Blackgum	70	7	Baldcypress.
							Sweetbay	---	---	
							Baldcypress	---	---	
							Swamp tupelo	---	---	
							Green ash	---	---	
							Red maple	---	---	
							Water tupelo	---	---	
60:										
Alpin	8S	Slight	Moderate	Moderate	Slight	Slight	Loblolly pine	85	8	Slash pine, loblolly pine.
							Slash pine	90	11	
							Longleaf pine	70	6	
							Turkey oak	---	---	
							Post oak	---	---	
							Blackjack oak	---	---	
							Bluejack oak	---	---	
Shadeville	11S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	85	11	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine	90	9	
							Longleaf pine	65	5	
							Live oak	---	---	
							Black cherry	---	---	
62:										
Resota	8S	Slight	Moderate	Severe	Slight	Moderate	Slash pine	70	8	Slash pine, longleaf pine.
							Longleaf pine	65	5	
							Sand pine	60	3	
							Sand live oak	---	---	
Blanton	11S	Slight	Moderate	Moderate	Slight	Moderate	Slash pine	90	11	Slash pine, loblolly pine, longleaf pine.
							Loblolly pine	85	8	
							Longleaf pine	70	6	
							Bluejack oak	---	---	
							Turkey oak	---	---	
							Southern red oak	---	---	
							Live oak	---	---	
Bigbee	9S	Slight	Slight	Moderate	Slight	Slight	Loblolly pine	88	9	Loblolly pine.

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

Table 6.--Recreational Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated.)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
2--------------------- Albany	Severe: wetness, too sandy.	Severe: too sandy.	Severe: too sandy, wetness.	Severe: too sandy.	Severe: droughty.
3--------------------- Alpin	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
4--------------------- Alpin	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
5--------------------- Blanton	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
6--------------------- Blanton	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
7--------------------- Kenansville	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: flooding.
8--------------------- Chipley	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
9--------------------- Foxworth	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
10-------------------- Lowndes	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
11-------------------- Lowndes	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
12:					
Lowndes--------------	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Moderate: droughty, slope, too sandy.
Norfolk--------------	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: droughty, slope.
13-------------------- Mascotte	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
14-------------------- Pottsburg	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
15-------------------- Valdosta	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
16-------------------- Valdosta	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.

Table 6.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
17--------------------Wadley	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
18--------------------Wadley	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
19:					
Valdosta-------------	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty, slope.
Lowndes--------------	Severe: slope.	Severe: slope.		Moderate: too sandy, slope.	Severe: slope.
20--------------------Pamlico	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: wetness, excess humus.
21:					
Plummer--------------	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: ponding.
Surrency-------------	Severe: ponding, too sandy.	Severe: ponding, too sandy.	Severe: too sandy, ponding.	Severe: ponding, too sandy.	Severe: ponding.
22--------------------Alpin	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
23--------------------Blanton	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
24--------------------Ocilla	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: wetness, too sandy.	Moderate: wetness, droughty.
25:					
Wampee---------------	Severe: wetness.	Moderate: slope, wetness, too sandy.	Severe: slope, wetness.	Moderate: wetness, too sandy.	Severe: droughty.
Blanton--------------	Severe: too sandy.	Severe: too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty.
26:					
Mascotte-------------	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
Plummer--------------	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.

Table 6.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
27-------------------- Kenansville	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
28-------------------- Wampee	Severe: wetness.	Moderate: wetness, too sandy.	Severe: slope, wetness.	Moderate: wetness, too sandy.	Severe: droughty.
29-------------------- Bonneau	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
31:					
Wampee---------------	Severe: wetness.	Moderate: slope, wetness, too sandy.	Severe: slope, wetness.	Moderate: wetness, too sandy.	Severe: droughty.
Blanton--------------	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: slope, too sandy.	Severe: too sandy.	Severe: droughty, slope.
32-------------------- Norfolk	Slight----------	Slight----------	Moderate: slope.	Slight----------	Moderate: droughty.
33-------------------- Pelham	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
34-------------------- Plummer	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
35-------------------- Wahee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
36-------------------- Blanton	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, flooding.
37-------------------- Eunola	Severe: flooding.	Moderate: wetness.	Moderate: slope, wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
46-------------------- Stockade	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
47-------------------- Goldhead	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
48-------------------- Bivans	Severe: wetness, percs slowly.	Severe: percs slowly.	Severe: slope, wetness.	Moderate: wetness.	Moderate: wetness, slope.
49:					
Otela----------------	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
Alpin----------------	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.

Table 6.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
51: Bigbee	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, flooding.
52: Pelham	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness.
54: Pits	Variable	Variable	Variable	Variable	Variable.
56:					
Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Bigbee	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, flooding.
57: Osier	Severe: flooding, wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
58: Sapelo	Severe: wetness, too sandy.	Severe: wetness, too sandy.	Severe: too sandy, wetness.	Severe: wetness, too sandy.	Severe: wetness, droughty.
59: Dorovan	Severe: ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding.	Severe: ponding, excess humus.	Severe: ponding, excess humus.
60:					
Alpin	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Shadeville	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
61: Arents	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
62:					
Resota	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Blanton	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, flooding.
Bigbee	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, flooding.
63:					
Arents	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.
Water.					

Table 6.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
64-------------------- Hydraquents	Severe: ponding, percs slowly, too clayey.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding, percs slowly.	Severe: ponding, too clayey.	Severe: ponding, too clayey.
65-------------------- Gypsum land	Severe: slope, depth to rock, excess salt.	Severe: slope, excess salt, depth to rock.	Severe: slope, depth to rock, excess salt.	Severe: slope.	Severe: excess salt, slope, depth to rock.
66-------------------- Urban land	Variable--------	Variable--------	Variable--------	Variable--------	Variable.
67-------------------- Quartzipsamments	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: droughty.

Table 7.--Wildlife Habitat

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated.)

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
2----------------- Albany	Fair	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair	Poor
3, 4--------------- Alpin	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
5, 6--------------- Blanton	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
7----------------- Kenansville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
8----------------- Chipley	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
9----------------- Foxworth	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
10, 11------------- Lowndes	Fair	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
12:										
Lowndes-----------	Fair	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Norfolk-----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
13----------------- Mascotte	Poor	Fair	Fair	Poor	Fair	Poor	Fair	Fair	Fair	Poor
14----------------- Pottsburg	Poor	Fair	Fair	Poor	Fair	Poor	Fair	Fair	Fair	Poor
15, 16------------- Valdosta	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
17, 18------------- Wadley	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
19:										
Valdosta----------	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Lowndes-----------	Poor	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
20----------------- Pamlico	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Very poor.	Poor	Good
21:										
Plummer-----------	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
Surrency----------	Poor	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Fair

Table 7.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
22----------------- Alpin	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
23----------------- Blanton	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
24----------------- Ocilla	Fair	Fair	Good	Fair	Good	Fair	Fair	Fair	Good	Fair
25:										
Wampee------------	Fair	Fair	Good	Good	Good	Fair	Poor	Fair	Good	Fair
Blanton-----------	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
26:										
Mascotte----------	Poor	Fair	Fair	Poor	Fair	Poor	Fair	Fair	Fair	Poor
Plummer-----------	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
27----------------- Kenansville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
28----------------- Wampee	Fair	Fair	Good	Good	Good	Fair	Poor	Fair	Good	Fair
29----------------- Bonneau	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
31:										
Wampee------------	Fair	Fair	Good	Good	Good	Fair	Poor	Fair	Good	Fair
Blanton-----------	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
32----------------- Norfolk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
33----------------- Pelham	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair
34----------------- Plummer	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair
35----------------- Wahee	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair
36----------------- Blanton	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
37----------------- Eunola	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
46----------------- Stockade	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good
47----------------- Goldhead	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Poor

Table 7.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
48: Bivans	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
49:										
Otela	Poor	Fair	Good	Fair	Fair	Poor	Poor	Fair	Fair	Very poor.
Alpin	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
51: Bigbee	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
52: Pelham	Poor	Poor	Fair	Fair	Fair	Fair	Fair	Poor	Fair	Fair
54: Pits	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
56:										
Bibb	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good
Bigbee	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
57: Osier	Very poor.	Poor	Fair	Fair	Fair	Fair	Good	Poor	Fair	Fair
58: Sapelo	Poor	Fair	Fair	Poor	Fair	Fair	Fair	Fair	Fair	Fair
59: Dorovan	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good
60:										
Alpin	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Shadeville	Fair	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
61: Arents	Poor	Poor	Fair	Very poor.	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
62:										
Resota	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Blanton	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Bigbee	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
63:										
Arents	Poor	Poor	Fair	Very poor.	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Water.										

Table 7.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
64----------------- Hydraquents	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Fair
65----------------- Gypsum land	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
66. Urban land										
67. Quartzipsamments										

Table 8.--Building Site Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
2----------------- Albany	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Severe: droughty.
3----------------- Alpin	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Severe: droughty.
4----------------- Alpin	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Severe: droughty.
5----------------- Blanton	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Severe: droughty.
6----------------- Blanton	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Severe: droughty.
7----------------- Kenansville	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
8----------------- Chipley	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: droughty.
9----------------- Foxworth	Severe: cutbanks cave.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty, too sandy.
10---------------- Lowndes	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
11---------------- Lowndes	Severe: cutbanks cave.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Moderate: droughty.
12:						
Lowndes----------	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope, too sandy.
Norfolk----------	Moderate: wetness, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope.	Moderate: droughty, slope.
13---------------- Mascotte	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
14---------------- Pottsburg	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
15---------------- Valdosta	Severe: cutbanks cave.	Slight---------	Slight---------	Slight---------	Slight---------	Severe: droughty.

Table 8.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
16-----------Valdosta	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Severe: droughty.
17-----------Wadley	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Severe: droughty.
18-----------Wadley	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.
19:						
Valdosta	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: droughty, slope.
Lowndes	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
20-----------Pamlico	Severe: cutbanks cave, excess humus, ponding.	Severe: ponding, low strength.	Severe: ponding.	Severe: ponding, low strength.	Severe: low strength, ponding.	Severe: ponding, excess humus.
21:						
Plummer	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Surrency	Severe: cutbanks cave, ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
22-----------Alpin	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: droughty.
23-----------Blanton	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
24-----------Ocilla	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
25:						
Wampee	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Moderate: wetness, slope.	Severe: droughty.
Blanton	Severe: cutbanks cave.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope.	Severe: droughty.
26:						
Mascotte	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.
Plummer	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, droughty.
27-----------Kenansville	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.

Table 8.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
28 Wampee	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Severe: droughty.
29 Bonneau	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty, too sandy.
31:						
Wampee	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, slope.	Moderate: wetness, slope.	Severe: droughty.
Blanton	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: droughty, slope.
32 Norfolk	Moderate: wetness.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty.
33 Pelham	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
34 Plummer	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
35 Wahee	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
36 Blanton	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
37 Eunola	Severe: cutbanks cave, wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
46 Stockade	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
47 Goldhead	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
48 Bivans	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell, slope.	Severe: low strength, shrink-swell.	Moderate: wetness, slope.
49:						
Otela	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty, too sandy.
Alpin	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.
51 Bigbee	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.

Table 8.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
52: Pelham	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.
54: Pits	Variable	Variable	Variable	Variable	Variable	Variable.
56:						
Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.
Bigbee	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
57: Osier	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, droughty.
58: Sapelo	Severe: cutbanks cave, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, droughty.
59: Dorovan	Severe: excess humus, ponding.	Severe: subsides, ponding.	Severe: subsides, ponding.	Severe: subsides, ponding.	Severe: subsides, ponding.	Severe: ponding, excess humus.
60:						
Alpin	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Severe: droughty.
Shadeville	Severe: cutbanks cave.	Slight	Moderate: wetness.	Slight	Slight	Moderate: droughty, too sandy.
61: Arents	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.
62:						
Resota	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: droughty.
Blanton	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
Bigbee	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
63:						
Arents	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Severe: droughty.
Water.						
64: Hydraquents	Severe: ponding.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: ponding, shrink-swell.	Severe: low strength, ponding, shrink-swell.	Severe: ponding, too clayey.

Table 8.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
65----------------Gypsum land	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: excess salt, slope, depth to rock.
66----------------Urban land	Variable-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
67----------------Quartzipsamments	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Severe: droughty.

Table 9.--Sanitary Facilities

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
2------------------- Albany	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness.
3, 4---------------- Alpin	Slight-----------	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
5, 6---------------- Blanton	Moderate: wetness.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
7------------------- Kenansville	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Poor: seepage, too sandy.
8------------------- Chipley	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.
9------------------- Foxworth	Moderate: wetness.	Severe: seepage.	Severe: seepage, wetness.	Severe: seepage.	Poor: seepage, too sandy.
10, 11-------------- Lowndes	Severe: poor filter.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Good.
12:					
Lowndes------------	Severe: poor filter.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: slope.
Norfolk------------	Moderate: wetness, percs slowly, slope.	Severe: slope.	Severe: wetness.	Moderate: wetness, slope.	Fair: too clayey, slope.
13------------------ Mascotte	Severe: wetness, percs slowly, poor filter.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness, thin layer.
14------------------ Pottsburg	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
15, 16-------------- Valdosta	Slight-----------	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy.
17------------------ Wadley	Moderate: slope.	Severe: seepage, slope.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.

Table 9.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
18 Wadley	Slight	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.
19:					
Valdosta	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Lowndes	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
20 Pamlico	Severe: ponding, poor filter.	Severe: seepage, excess humus.	Severe: seepage, ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
21:					
Plummer	Severe: ponding, poor filter.	Severe: seepage, excess humus, ponding.	Severe: ponding, too sandy.	Severe: seepage, ponding.	Poor: seepage, too sandy, ponding.
Surrency	Severe: ponding.	Severe: seepage, ponding.	Severe: ponding, too sandy.	Severe: seepage, ponding.	Poor: too sandy, ponding.
22 Alpin	Severe: flooding, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, too sandy.	Severe: flooding, seepage.	Poor: seepage, too sandy.
23 Blanton	Moderate: wetness.	Severe: seepage.	Moderate: too sandy.	Severe: seepage.	Fair: too sandy.
24 Ocilla	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Fair: wetness.
25:					
Wampee	Severe: wetness, percs slowly, poor filter.	Severe: seepage, slope, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
Blanton	Moderate: wetness, slope.	Severe: seepage, slope.	Severe: too sandy.	Severe: seepage.	Poor: too sandy.
26:					
Mascotte	Severe: flooding, wetness, percs slowly.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Poor: wetness.
Plummer	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness, too sandy.	Severe: flooding, seepage, wetness.	Poor: too sandy, wetness.
27 Kenansville	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.

Table 9.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
28------------------ Wampee	Severe: wetness, percs slowly, poor filter.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
29------------------ Bonneau	Severe: wetness.	Severe: seepage.	Severe: wetness.	Severe: seepage.	Good.
31:					
Wampee-------------	Severe: wetness, percs slowly, poor filter.	Severe: seepage, slope, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
Blanton------------	Severe: slope.	Severe: seepage, slope.	Severe: slope, too sandy.	Severe: seepage, slope.	Poor: too sandy, slope.
32------------------ Norfolk	Moderate: wetness, percs slowly.	Moderate: seepage, wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey.
33------------------ Pelham	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
34------------------ Plummer	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness.
35------------------ Wahee	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
36------------------ Blanton	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, too sandy.	Severe: flooding, seepage.	Poor: seepage, too sandy.
37------------------ Eunola	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness, thin layer.
46------------------ Stockade	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
47------------------ Goldhead	Severe: wetness, poor filter.	Severe: seepage.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
48------------------ Bivans	Severe: wetness, percs slowly.	Severe: seepage, slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
49:					
Otela--------------	Severe: percs slowly, poor filter.	Severe: seepage.	Severe: too sandy.	Severe: seepage.	Poor: seepage, too sandy.

Table 9.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
49:					
Alpin	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
51 Bigbee	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
52 Pelham	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, wetness, too acid.	Severe: flooding, seepage, wetness.	Poor: wetness, too acid.
54 Pits	Variable	Variable	Variable	Variable	Variable.
56:					
Bibb	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: small stones, wetness.
Bigbee	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
57 Osier	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage, wetness.	Poor: seepage, too sandy, wetness.
58 Sapelo	Severe: wetness.	Severe: seepage, wetness.	Severe: wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy, wetness.
59 Dorovan	Severe: subsides, ponding.	Severe: excess humus, ponding.	Severe: seepage, ponding.	Severe: ponding.	Poor: ponding, excess humus.
60:					
Alpin	Slight	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Shadeville	Moderate: wetness, percs slowly.	Severe: seepage.	Severe: depth to rock, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
61 Arents	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
62:					
Resota	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
Blanton	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, too sandy.	Severe: flooding, seepage.	Poor: seepage, too sandy.

Table 9.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
62:					
Bigbee	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
63:					
Arents	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
Water.					
64 Hydraquents	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey.	Severe: ponding.	Poor: too clayey, hard to pack, ponding.
65 Gypsum land	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, excess salt.	Severe: depth to rock, slope.	Poor: depth to rock, slope, excess salt.
66 Urban land	Variable	Variable	Variable	Variable	Variable.
67 Quartzipsamments	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: seepage, too sandy.

Table 10.--Construction Materials

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
2. Albany	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
3, 4. Alpin	Good	Probable	Improbable: too sandy.	Poor: too sandy.
5, 6. Blanton	Good	Probable	Improbable: too sandy.	Poor: too sandy.
7. Kenansville	Good	Probable	Improbable: too sandy.	Poor: too sandy.
8. Chipley	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
9. Foxworth	Good	Probable	Improbable: too sandy.	Poor: too sandy.
10, 11. Lowndes	Good	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
12:				
Lowndes	Good	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
Norfolk	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
13. Mascotte	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
14. Pottsburg	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
15, 16. Valdosta	Good	Probable	Improbable: too sandy.	Fair: too sandy.
17, 18. Wadley	Good	Probable	Improbable: too sandy.	Poor: too sandy.
19:				
Valdosta	Fair: slope.	Probable	Improbable: too sandy.	Poor: slope.
Lowndes	Fair: slope.	Improbable: thin layer.	Improbable: too sandy.	Poor: slope.
20. Pamlico	Poor: low strength, wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.

Table 10.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
21:				
Plummer	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
Surrency	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
22 Alpin	Good	Probable	Improbable: too sandy.	Poor: too sandy.
23 Blanton	Good	Probable	Improbable: too sandy.	Fair: too sandy.
24 Ocilla	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
25:				
Wampee	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, small stones.
Blanton	Good	Probable	Improbable: too sandy.	Poor: too sandy.
26:				
Mascotte	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
Plummer	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
27 Kenansville	Good	Probable	Improbable: too sandy.	Fair: too sandy.
28 Wampee	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, small stones.
29 Bonneau	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
31:				
Wampee	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, small stones.
Blanton	Fair: slope.	Probable	Improbable: too sandy.	Poor: too sandy, slope.
32 Norfolk	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
33 Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.

Table 10.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
34 Plummer	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
35 Wahee	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
36 Blanton	Good	Probable	Improbable: too sandy.	Poor: too sandy.
37 Eunola	Fair: wetness.	Probable	Improbable: too sandy.	Fair: too clayey, small stones, thin layer.
46 Stockade	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
47 Goldhead	Poor: wetness.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy, wetness.
48 Bivans	Poor: shrink-swell, low strength.	Poor: too clayey.	Improbable: excess fines.	Poor: too clayey.
49:				
Otela	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Alpin	Good	Probable	Improbable: too sandy.	Poor: too sandy.
51 Bigbee	Good	Probable	Improbable: too sandy.	Poor: too sandy.
52 Pelham	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy, wetness.
54 Pits	Variable	Variable	Variable	Variable.
56:				
Bibb	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, wetness.
Bigbee	Good	Probable	Improbable: too sandy.	Poor: too sandy.
57 Osier	Poor: wetness.	Probable	Improbable: too sandy.	Poor: too sandy, wetness.
58 Sapelo	Poor: wetness.	Improbable: excess fines.	Improbable: too sandy.	Poor: too sandy, wetness.
59 Dorovan	Poor: wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.

Table 10.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
60:				
Alpin	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Shadeville	Fair: depth to rock.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
61 Arents	Good	Probable	Improbable: too sandy.	Poor: too sandy.
62:				
Resota	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Blanton	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Bigbee	Good	Probable	Improbable: too sandy.	Poor: too sandy.
63:				
Arents	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Water.				
64 Hydraquents	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
65 Gypsum land	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, excess salt, slope.
66 Urban land	Variable	Variable	Variable	Variable.
67 Quartzipsamments	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.

Table 11.--Water Management

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
2------------ Albany	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Severe: slow refill, cutbanks cave.	Wetness, droughty.	Wetness, too sandy, soil blowing.	Wetness, droughty.
3------------ Alpin	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
4------------ Alpin	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Too sandy, soil blowing.	Droughty.
5------------ Blanton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
6------------ Blanton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Too sandy, soil blowing.	Droughty.
7------------ Kenansville	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Fast intake, soil blowing.	Too sandy, soil blowing.	Favorable.
8------------ Chipley	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty.	Wetness, too sandy, soil blowing.	Droughty.
9------------ Foxworth	Severe: seepage.	Severe: seepage.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
10----------- Lowndes	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
11----------- Lowndes	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water, slope.	Slope, droughty, fast intake.	Too sandy, soil blowing.	Droughty.
12:							
Lowndes-----	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water, slope.	Slope, droughty, fast intake.	Slope, too sandy.	Slope, droughty.
Norfolk-----	Severe: slope.	Severe: piping.	Moderate: deep to water, slow refill.	Deep to water	Slope, fast intake.	Slope, soil blowing.	Slope.
13----------- Mascotte	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Favorable------	Wetness, droughty, fast intake.	Wetness, soil blowing.	Wetness, droughty, rooting depth.
14----------- Pottsburg	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.

Table 11.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
15----------- Valdosta	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
16----------- Valdosta	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water, slope.	Slope, droughty, fast intake.	Too sandy, soil blowing.	Droughty.
17----------- Wadley	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Slope, droughty.
18----------- Wadley	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
19:							
Valdosta----	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water, slope.	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Slope, droughty.
Lowndes-----	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water, slope.	Slope, droughty, fast intake.	Slope----------	Slope, droughty.
20----------- Pamlico	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, subsides, cutbanks cave.	Ponding, soil blowing.	Ponding, soil blowing.	Wetness.
21:							
Plummer-----	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty.	Ponding, too sandy.	Wetness, droughty.
Surrency----	Severe: seepage.	Severe: seepage, piping, ponding.	Severe: cutbanks cave.	Ponding, cutbanks cave.	Ponding, droughty, fast intake.	Ponding, too sandy.	Wetness, droughty, rooting depth.
22----------- Alpin	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
23----------- Blanton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
24----------- Ocilla	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Favorable------	Wetness, droughty, fast intake.	Wetness, soil blowing.	Droughty.
25:							
Wampee------	Severe: seepage, slope.	Severe: wetness.	Severe: slow refill, cutbanks cave.	Slope----------	Slope, wetness, droughty.	Slope, wetness, soil blowing.	Wetness, slope, droughty.
Blanton-----	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Slope, droughty.

Table 11.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
26:							
Mascotte	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: slow refill, cutbanks cave.	Flooding	Wetness, droughty, fast intake.	Wetness, soil blowing.	Wetness, droughty, rooting depth.
Plummer	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.
27 Kenansville	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy	Droughty.
28 Wampee	Severe: seepage.	Severe: wetness.	Severe: slow refill, cutbanks cave.	Slope	Slope, wetness, droughty.	Wetness, soil blowing.	Wetness, droughty.
29 Bonneau	Severe: seepage.	Severe: thin layer.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Soil blowing	Droughty.
31:							
Wampee	Severe: seepage, slope.	Severe: wetness.	Severe: slow refill, cutbanks cave.	Slope	Slope, wetness, droughty.	Slope, wetness, soil blowing.	Wetness, slope, droughty.
Blanton	Severe: seepage, slope.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Slope, too sandy, soil blowing.	Slope, droughty.
32 Norfolk	Moderate: seepage, slope.	Severe: piping.	Moderate: deep to water, slow refill.	Deep to water	Slope, fast intake.	Soil blowing	Favorable.
33 Pelham	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Favorable	Fast intake, wetness.	Wetness, soil blowing.	Wetness.
34 Plummer	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.
35 Wahee	Slight	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, soil blowing.	Wetness, soil blowing, percs slowly.	Wetness, percs slowly.
36 Blanton	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
37 Eunola	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Flooding	Wetness, fast intake.	Wetness, soil blowing.	Favorable.
46 Stockade	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
47 Goldhead	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty.	Wetness, too sandy, soil blowing.	Wetness, droughty.

Table 11.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
48----------- Bivans	Severe: slope.	Moderate: hard to pack, wetness.	Severe: no water.	Percs slowly, slope.	Slope, wetness, fast intake.	Slope, wetness, soil blowing.	Wetness, slope, percs slowly.
49:							
Otela-------	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
Alpin-------	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
51----------- Bigbee	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Too sandy------	Droughty.
52----------- Pelham	Severe: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Flooding, too acid.	Wetness, fast intake, flooding.	Wetness, soil blowing.	Wetness.
54----------- Pits	Variable	Variable-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
56:							
Bibb--------	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding-------	Wetness--------	Erodes easily, wetness.	Wetness, erodes easily.
Bigbee------	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Too sandy------	Droughty.
57----------- Osier	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Flooding, cutbanks cave.	Wetness, droughty, fast intake.	Wetness, too sandy.	Wetness, droughty.
58----------- Sapelo	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty, fast intake.	Wetness, too sandy, soil blowing.	Wetness, droughty.
59----------- Dorovan	Moderate: seepage.	Severe: excess humus, ponding.	Severe: cutbanks cave.	Ponding, subsides.	Ponding, soil blowing.	Ponding, soil blowing.	Wetness.
60:							
Alpin-------	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Too sandy, soil blowing.	Droughty.
Shadeville--	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.
61----------- Arents	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Too sandy, soil blowing.	Droughty.
62:							
Resota------	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Droughty.

Table 11.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
62:							
Blanton-----	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Too sandy, soil blowing.	Droughty.
Bigbee------	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water	Droughty, fast intake.	Too sandy------	Droughty.
63:							
Arents------	Severe: seepage.	Severe: seepage, piping.	Severe: no water.	Deep to water	Slope, droughty, fast intake.	Too sandy, soil blowing.	Droughty.
Water.							
64----------- Hydraquents	Slight---	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly.	Ponding, slow intake, percs slowly.	Ponding, percs slowly.	Wetness, percs slowly.
65----------- Gypsum land	Severe: depth to rock, slope, seepage.	Severe: excess salt.	Severe: no water.	Deep to water	Slope, soil blowing, depth to rock.	Slope, depth to rock, soil blowing.	Slope, excess salt, depth to rock.
66----------- Urban land	Variable-	Variable-------	Variable-------	Variable-------	Variable-------	Variable-------	Variable.
67----------- Quartzip- samments	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Slope, cutbanks cave.	Slope, wetness, droughty.	Wetness, too sandy, soil blowing.	Droughty.

Table 12.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated.)

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
2---------------- Albany	0-57	Fine sand--------	SM, SP-SM	A-2	0	100	100	75-90	10-20	---	NP
	57-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM, SC-SM	A-2, A-4, A-6	0	97-100	95-100	70-100	20-50	<40	NP-17
3, 4------------- Alpin	0-4	Sand-------------	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	4-47	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	47-80	Fine sand, sand	SP-SM, SM	A-2-4	0	95-100	90-100	60-100	11-20	---	NP
5, 6------------- Blanton	0-54	Sand-------------	SP-SM, SM	A-3, A-2-4	0	100	90-100	65-100	5-20	---	NP
	54-80	Sandy clay loam, sandy loam, sandy clay.	SC, SC-SM, SM	A-4, A-2-4, A-2-6, A-6	0	100	95-100	69-100	25-50	12-45	3-22
7---------------- Kenansville	0-23	Fine sand--------	SM, SP-SM	A-1, A-2	0	100	95-100	45-100	10-25	---	NP
	23-80	Fine sand, loamy sand, loamy fine sand.	SP-SM, SM	A-1, A-2, A-3	0	100	95-100	40-100	5-30	---	NP
8---------------- Chipley	0-8	Sand-------------	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
	8-80	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	80-100	6-12	---	NP
9---------------- Foxworth	0-7	Sand-------------	SP-SM	A-3, A-2-4	0	100	100	60-100	5-12	---	NP
	7-55	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	60-100	5-12	---	NP
	55-80	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	100	100	50-100	1-12	---	NP
10, 11----------- Lowndes	0-33	Sand-------------	SP-SM	A-2, A-3	0	95-100	95-100	65-100	5-12	---	NP
	33-53	Sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-4, A-6	0	98-100	90-100	70-100	30-50	20-35	4-15
	53-80	Sandy clay loam, sandy clay, sandy loam.	CL, SC, SC-SM	A-4, A-6, A-2	0	98-100	90-100	70-100	30-65	20-40	4-20
12:											
Lowndes---------	0-33	Sand-------------	SP-SM	A-2, A-3	0	95-100	95-100	65-100	5-12	---	NP
	33-53	Sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-4, A-6	0	98-100	90-100	70-100	30-50	20-35	4-15
	53-80	Sandy clay loam, sandy clay, sandy loam.	CL, SC, SC-SM	A-4, A-6, A-2	0	98-100	90-100	70-100	30-65	20-40	4-20
Norfolk---------	0-6	Loamy fine sand	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	6-44	Sandy loam, sandy clay loam, clay loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
	44-80	Sandy clay loam, clay loam, sandy clay.	SC, SC-SM, CL, CL-ML	A-4, A-6, A-7-6	0	100	98-100	65-98	36-72	20-52	4-23

Table 12.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
13--------------- Mascotte	0-5	Sand-------------	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	5-13	Fine sand, sand	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	13-17	Fine sand, sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	8-15	---	NP
	17-36	Fine sandy loam, sand, loamy fine sand.	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	36-61	Sandy clay loam, sandy loam, fine sandy loam.	SC, SC-SM, SM	A-2, A-4, A-6	0	100	100	85-100	19-45	<38	NP-15
	61-80	Fine sand, sand, loamy sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	8-15	---	NP
14--------------- Pottsburg	0-7	Sand-------------	SP, SP-SM	A-3	0	100	100	80-100	2-10	---	NP
	7-51	Sand, fine sand	SP, SP-SM	A-3	0	100	100	80-100	1-8	---	NP
	51-80	Sand, fine sand, loamy sand.	SP-SM, SP-SM, SP, SM	A-3, A-2-4	0	100	100	80-100	4-18	---	NP
15, 16----------- Valdosta	0-10	Sand-------------	SP-SM	A-3, A-2-4	0	100	95-100	65-100	5-12	---	NP
	10-58	Loamy sand, loamy fine sand.	SM	A-2	0	100	95-100	65-90	13-25	---	NP
	58-80	Sand, loamy sand	SP-SM, SM	A-2, A-3	0	100	95-100	51-80	5-15	---	NP
17, 18----------- Wadley	0-70	Sand-------------	SM, SP-SM	A-3, A-2-4	0	100	95-100	75-100	8-25	---	NP
	70-80	Sandy loam, fine sandy loam, sandy clay loam.	SC, SM, SC-SM	A-2, A-4, A-6	0	100	95-100	70-100	20-50	<40	NP-17
19:											
Valdosta--------	0-9	Sand-------------	SP-SM	A-3, A-2-4	0	100	95-100	65-100	5-12	---	NP
	9-58	Loamy sand, loamy fine sand.	SM	A-2	0	100	95-100	65-90	13-25	---	NP
	58-80	Sand, loamy sand	SP-SM, SM	A-2, A-3	0	100	95-100	51-80	5-15	---	NP
Lowndes---------	0-32	Loamy fine sand	SM, SP-SM	A-2, A-3	0	95-100	90-100	70-100	8-20	---	NP
	32-45	Sandy loam, sandy clay loam.	SC, SC-SM	A-2, A-4, A-6	0	98-100	90-100	70-100	30-50	20-35	4-15
	45-80	Sandy clay loam, sandy clay, sandy loam.	CL, SC, SC-SM	A-4, A-6, A-2	0	98-100	90-100	70-100	30-65	20-40	4-20
20--------------- Pamlico	0-25	Muck-------------	PT	---	0	---	---	---	---	---	---
	25-80	Loamy sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	0	100	100	70-95	5-20	---	NP
21:											
Plummer---------	0-9	Sand-------------	SP-SM	A-3	0	100	95-100	65-100	5-12	---	NP
	9-52	Sand, fine sand, loamy sand.	SM, SP-SM	A-2-4, A-3	0	100	100	75-96	5-26	---	NP
	52-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SC-SM	A-2-4, A-4	0	100	97-100	76-96	20-48	<30	NP-10

Table 12.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
21:											
Surrency--------	0-12	Sand-------------	SM, SP-SM	A-2	0	100	95-100	50-100	10-26	---	NP
	12-32	Loamy sand, sand, fine sand.	SP-SM, SM	A-2-4	0	100	95-100	50-100	10-26	---	NP
	32-80	Sandy loam, sandy clay loam.	SM, SC-SM, SC	A-2	0	100	95-100	75-100	22-35	<30	NP-10
22--------------- Alpin	0-3	Fine sand--------	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	3-47	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	47-80	Fine sand, sand	SP-SM, SM	A-2-4	0	95-100	90-100	60-100	11-20	---	NP
23--------------- Blanton	0-54	Loamy sand-------	SM	A-2-4	0	100	95-100	85-100	13-25	---	NP
	54-80	Sandy clay loam, sandy loam, sandy clay.	SC, SC-SM, SM	A-4, A-2-4, A-2-6, A-6	0	100	95-100	69-100	25-50	12-45	3-22
24--------------- Ocilla	0-34	Loamy fine sand	SM, SP-SM	A-2, A-3	0	100	95-100	75-100	8-35	---	NP
	34-52	Sandy loam, sandy clay loam, fine sandy loam.	SM, CL, SC, ML	A-2, A-4, A-6	0	100	95-100	80-100	20-55	20-40	NP-18
	52-80	Sandy clay loam, sandy clay, sandy loam.	SC, CL	A-4, A-6, A-7	0	100	95-100	80-100	36-60	20-45	7-20
25:											
Wampee----------	0-6	Loamy sand-------	SP-SM, SM	A-2	0-3	90-100	80-100	70-98	10-30	---	NP
	6-26	Loamy fine sand, gravelly fine sand, loamy sand.	SM, SP-SM	A-3, A-2	0-3	80-100	68-98	65-95	5-30	---	NP
	26-51	Sandy clay loam, gravelly sandy clay loam, sandy loam.	SC-SM, SC	A-2, A-4, A-6	0-3	80-100	68-98	65-95	25-50	16-40	4-20
	51-80	Sandy clay, sandy loam, sandy clay loam.	CL, SC	A-2, A-4, A-6, A-7-6	0	95-100	90-100	80-100	30-55	27-50	8-26
Blanton---------	0-54	Sand-------------	SP-SM, SM	A-3, A-2-4	0	100	90-100	65-100	5-20	---	NP
	54-80	Sandy clay loam, sandy loam, sandy clay.	SC, SC-SM, SM	A-4, A-2-4, A-2-6, A-6	0	100	95-100	69-100	25-50	12-45	3-22
26:											
Mascotte--------	0-5	Sand-------------	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	5-12	Fine sand, sand	SP-SM	A-3, A-2-4	0	100	100	85-100	5-12	---	NP
	12-35	Fine sand, sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	8-15	---	NP
	35-80	Sandy clay loam, sandy loam, fine sandy loam.	SC-SM, SM, SC	A-2-4, A-4, A-6, A-2	0	100	100	85-100	19-45	<38	NP-15

Table 12.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
26:											
Plummer---------	0-52	Sand-------------	SM, SP-SM	A-2-4, A-3	0	100	100	75-90	5-20	---	NP
	52-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SC-SM	A-2-4, A-4	0	100	97-100	76-96	20-48	<30	NP-10
27--------------- Kenansville	0-23	Loamy sand-------	SM, SP-SM	A-1, A-2	0	100	95-100	45-99	10-25	---	NP
	23-58	Sandy loam, fine sandy loam, sandy clay loam.	SM, SC, SC-SM	A-2, A-4	0	100	95-100	50-99	25-45	<30	NP-10
	58-80	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-1, A-2, A-3	0	100	95-100	40-99	5-30	---	NP
28--------------- Wampee	0-6	Loamy sand-------	SP-SM, SM	A-2	0-3	90-100	80-100	70-98	10-30	---	NP
	6-26	Loamy fine sand, gravelly fine sand, loamy sand.	SM, SP-SM	A-3, A-2	0-3	80-100	68-98	65-95	5-30	---	NP
	26-80	Sandy clay, sandy loam, sandy clay loam.	CL, SC	A-2, A-4, A-6, A-7-6	0	95-100	90-100	80-100	30-55	27-50	8-26
29--------------- Bonneau	0-25	Sand-------------	SM, SP-SM	A-2, A-3	0	100	100	60-95	8-20	---	NP
	25-50	Sandy loam, sandy clay loam, fine sandy loam.	SC, SC-SM	A-2, A-6, A-4	0	100	100	60-100	30-50	21-40	4-21
	50-80	Sandy loam, sandy clay loam, sandy clay.	CL, SC, SC-SM, CL-ML	A-4, A-6, A-2	0	100	100	60-95	25-60	20-40	4-18
31:											
Wampee----------	0-6	Loamy sand-------	SP-SM, SM	A-2	0-3	90-100	80-100	70-98	10-30	---	NP
	6-26	Loamy fine sand, gravelly fine sand, loamy sand.	SM, SP-SM	A-3, A-2	0-3	80-100	68-98	65-95	5-30	---	NP
	26-80	Sandy clay loam, gravelly sandy clay loam, sandy loam.	SC-SM, SC	A-2, A-4, A-6	0-3	80-100	68-98	65-95	25-50	16-40	4-20
Blanton---------	0-54	Sand-------------	SP-SM, SM	A-3, A-2-4	0	100	90-100	65-100	5-20	---	NP
	54-80	Sandy clay loam, sandy loam, sandy clay.	SC, SC-SM, SM	A-4, A-2-4, A-2-6, A-6	0	100	95-100	69-100	25-50	12-45	3-22
32--------------- Norfolk	0-6	Loamy fine sand	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	6-80	Sandy loam, sandy clay loam, clay loam.	SC, SC-SM, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
33--------------- Pelham	0-25	Sand-------------	SM, SP-SM	A-2	0	100	95-100	75-100	10-25	---	NP
	25-32	Sandy clay loam, sandy loam, fine sandy loam.	SM, SC, SC-SM	A-2, A-4, A-6	0	100	95-100	65-100	27-50	15-30	2-12
	32-80	Sandy clay loam, sandy loam, sandy clay.	SC, SM, ML, CL	A-2, A-4, A-6, A-7	0	100	95-100	65-100	27-65	20-45	3-20

Table 12.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag- ments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
34--------------- Plummer	0-52	Sand-------------	SM, SP-SM	A-2-4, A-3	0	100	100	75-90	5-20	---	NP
	52-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SC-SM	A-2-4, A-4	0	100	97-100	76-96	20-48	<30	NP-10
35--------------- Wahee	0-5	Fine sandy loam	SM, SC-SM	A-2, A-4	0	100	95-100	50-98	30-50	<28	NP-7
	5-80	Variable---------	---	---	---	---	---	---	---	---	---
36--------------- Blanton	0-54	Fine sand--------	SP-SM	A-2-4, A-3	0	100	100	65-100	5-12	---	NP
	54-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SC-SM, SM	A-4, A-2-4, A-2-6, A-6	0	100	100	69-100	25-50	12-37	3-20
37--------------- Eunola	0-6	Loamy fine sand	SM, SP-SM	A-2, A-4, A-2-4	0	100	98-100	50-80	10-38	---	NP
	6-68	Sandy clay loam, clay loam, fine sandy loam.	SM, SC, SC-SM, CL	A-4, A-2, A-6	0	100	90-100	75-95	30-60	<36	NP-15
	68-80	Sand, loamy sand, fine sand.	SM, SP-SM	A-2, A-3	0	100	98-100	50-75	5-30	---	NP
46--------------- Stockade	0-9	Fine sandy loam	SM, ML	A-2-4, A-4	0	100	100	85-100	20-60	<30	NP-7
	9-54	Sandy clay loam, fine sandy loam.	SC	A-4, A-6, A-2	0	100	100	90-100	28-45	28-40	9-18
	54-80	Variable---------	---	---	---	---	---	---	---	---	---
47--------------- Goldhead	0-4	Fine sand--------	SP, SP-SM	A-3	0	100	100	90-99	2-6	---	NP
	4-36	Sand, fine sand	SP, SP-SM	A-3	0	95-100	90-100	90-99	2-6	---	NP
	36-80	Sandy loam, gravelly sandy loam, sandy clay loam.	SM, SC-SM, SC	A-2-4, A-2-6	0-3	75-100	65-100	60-95	15-35	20-40	NP-25
48--------------- Bivans	0-16	Loamy sand-------	SM	A-2-4	0	95-100	95-100	80-100	15-25	---	NP
	16-80	Sandy clay loam, sandy clay.	SC, CL	A-6, A-7	0	95-100	95-100	82-100	36-55	30-46	15-26
49:											
Otela-----------	0-52	Sand-------------	SP-SM, SM	A-3, A-2-4	0	97-100	95-100	75-100	5-15	---	NP
	52-80	Sandy clay loam, sandy loam, loamy fine sand.	SC, SC-SM, SM	A-2-6, A-2-4, A-4, A-6	0	97-100	95-100	75-100	20-50	<40	NP-15
Alpin-----------	0-4	Sand-------------	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	4-47	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	47-80	Fine sand, sand	SP-SM, SM	A-2-4	0	95-100	90-100	60-100	11-20	---	NP
51--------------- Bigbee	0-9	Fine sand--------	SM, SP-SM	A-2-4, A-3	0	100	95-100	50-75	5-20	---	NP
	9-80	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	85-100	85-100	50-75	5-20	---	NP

Table 12.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
52--------------- Pelham	0-25	Fine sand--------	SM, SP-SM	A-2	0	100	95-100	75-90	10-25	---	NP
	25-80	Sandy clay loam, sandy loam, fine sandy loam.	SM, SC, SC-SM	A-2, A-4, A-6	0	100	95-100	65-90	27-50	15-30	2-12
54--------------- Pits	0-60	Variable---------	---	---	---	---	---	---	---	---	---
56:											
Bibb------------	0-2	Silt loam--------	ML, CL-ML	A-4	0-5	95-100	90-100	80-90	50-80	<25	NP-7
	2-80	Sandy loam, loam, silt loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
Bigbee----------	0-9	Fine sand--------	SM, SP-SM	A-2-4, A-3	0	100	95-100	50-75	5-20	---	NP
	9-80	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	85-100	85-100	50-75	5-20	---	NP
57--------------- Osier	0-8	Sand-------------	SP-SM	A-2, A-3	0	100	98-100	60-85	5-12	---	NP
	8-80	Coarse sand, sand, fine sand.	SP, SP-SM	A-1, A-3, A-2-4	0	100	90-100	40-60	2-10	---	NP
58--------------- Sapelo	0-19	Sand-------------	SM, SP, SP-SM	A-2, A-3	0	100	100	85-100	4-20	---	NP
	19-28	Fine sand, sand, loamy fine sand.	SM, SP-SM	A-2, A-3	0	100	100	80-100	8-20	---	NP
	28-48	Fine sand, sand	SM, SP, SP-SM	A-2, A-3	0	100	100	75-100	4-20	---	NP
	48-80	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SC-SM	A-2, A-4, A-6	0	100	100	80-100	20-50	<40	NP-20
59--------------- Dorovan	0-55	Muck-------------	PT	---	0	---	---	---	---	---	---
	55-80	Sand, loamy sand, loam.	SP-SM, SC-SM, SM	A-1, A-3, A-4, A-2-4	0	100	100	5-70	5-49	<20	NP-7
60:											
Alpin-----------	0-4	Sand-------------	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	4-47	Fine sand, sand	SP-SM, SM	A-3, A-2-4	0	95-100	90-100	60-100	5-20	---	NP
	47-80	Fine sand, sand	SP-SM, SM	A-2-4	0	95-100	90-100	60-100	11-20	---	NP
Shadeville------	0-3	Sand-------------	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-15	---	NP
	3-38	Sand, fine sand	SP-SM, SM	A-3, A-2-4	0	100	100	85-100	5-15	---	NP
	38-72	Sandy loam, fine sandy loam, sandy clay loam.	SC-SM, SC, SM	A-2-4, A-2-6, A-4, A-6	0	100	100	85-100	20-45	<35	NP-20
61--------------- Arents	0-80	Sand-------------	SP, SP-SM	A-3	0	100	100	85-99	0-5	---	NP
62:											
Resota----------	0-80	Fine sand--------	SP, SM, SP-SM	A-3, A-2-4	0	100	100	85-99	1-15	---	NP

Table 12.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
62:											
Blanton---------	0-54	Fine sand--------	SP-SM	A-2-4, A-3	0	100	100	65-100	5-12	---	NP
	54-80	Sandy clay loam, sandy loam, fine sandy loam.	SC, SC-SM, SM	A-4, A-2-4, A-2-6, A-6	0	100	100	69-100	25-50	12-37	3-20
Bigbee----------	0-9	Fine sand--------	SM, SP-SM	A-2-4, A-3	0	100	95-100	50-75	5-20	---	NP
	9-80	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	85-100	85-100	50-75	5-20	---	NP
63:											
Arents----------	0-80	Sand-------------	SP, SP-SM	A-3	0	100	100	85-99	0-5	---	NP
Water.											
64--------------- Hydraquents	0-80	Clay-------------	CH	A-7	0	100	100	90-100	85-99	60-90	30-55
65--------------- Gypsum land	0-60	Gypsiferous material.	---	---	---	---	---	---	---	---	---
66--------------- Urban land	0-6	Variable---------	---	---	---	---	---	---	---	---	---
67--------------- Quartzipsamments	0-80	Fine sand--------	SP, SP-SM	A-3	0	100	100	85-100	2-10	---	NP

Table 13.--Physical and Chemical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated.)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
2---------------- Albany	0-57	1-10	1.40-1.55	6.0-20	0.02-0.04	3.6-6.5	<2	Low-------	0.10	5	1	1-2
	57-80	13-35	1.55-1.65	0.2-2.0	0.10-0.16	4.5-6.0	<2	Low-------	0.24			
3, 4------------- Alpin	0-4	1-12	1.35-1.55	2.0-6.0	0.05-0.10	4.5-6.5	<2	Low-------	0.10	5	1	0-2
	4-47	1-7	1.40-1.55	6.0-20	0.03-0.09	4.5-6.5	<2	Low-------	0.10			
	47-80	5-8	1.45-1.65	2.0-6.0	0.06-0.09	4.5-6.5	<2	Low-------	0.10			
5, 6------------- Blanton	0-54	1-7	1.30-1.60	6.0-20	0.03-0.07	4.5-6.0	<2	Low-------	0.10	5	1	.5-1
	54-80	12-40	1.60-1.70	0.2-2.0	0.10-0.15	4.5-5.5	<2	Low-------	0.20			
7---------------- Kenansville	0-23	3-10	1.10-1.30	6.0-20	0.10-0.20	4.5-6.0	<2	Low-------	0.10	5	1	1-4
	23-80	1-10	1.30-1.50	6.0-20	0.10-0.20	4.5-6.0	<2	Low-------	0.15			
8---------------- Chipley	0-8	1-5	1.35-1.45	6.0-20	0.05-0.10	3.6-6.0	<2	Low-------	0.10	5	1	2-5
	8-80	1-7	1.45-1.60	6.0-20	0.03-0.08	4.5-6.5	<2	Low-------	0.10			
9---------------- Foxworth	0-7	1-8	1.25-1.45	>6.0	0.05-0.10	4.5-6.0	<2	Low-------	0.10	5	1	.5-2
	7-55	1-8	1.40-1.55	>6.0	0.05-0.10	4.5-6.0	<2	Low-------	0.10			
	55-80	1-6	1.45-1.65	>6.0	0.02-0.08	4.5-6.0	<2	Low-------	0.10			
10, 11----------- Lowndes	0-33	3-8	1.20-1.50	6.0-20	0.02-0.07	4.5-6.0	<2	Low-------	0.10	5	1	.5-1
	33-53	18-30	1.35-1.55	0.6-2.0	0.10-0.16	4.5-6.0	<2	Low-------	0.24			
	53-80	20-40	1.35-1.55	0.6-2.0	0.10-0.18	4.5-6.0	<2	Low-------	0.28			
12:												
Lowndes---------	0-33	3-8	1.20-1.50	6.0-20	0.02-0.07	4.5-6.0	<2	Low-------	0.10	5	1	.5-1
	33-53	18-30	1.35-1.55	0.6-2.0	0.10-0.16	4.5-6.0	<2	Low-------	0.24			
	53-80	20-40	1.35-1.55	0.6-2.0	0.10-0.18	4.5-6.0	<2	Low-------	0.28			
Norfolk---------	0-6	2-8	1.55-1.70	6.0-20	0.06-0.11	3.6-6.0	<2	Low-------	0.17	5	2	.5-2
	6-44	18-35	1.30-1.65	0.6-2.0	0.10-0.18	3.6-5.5	<2	Low-------	0.24			
	44-80	20-43	1.20-1.65	0.6-2.0	0.12-0.18	3.6-5.5	<2	Low-------	0.24			
13--------------- Mascotte	0-5	0-5	1.20-1.50	6.0-20	0.05-0.15	3.6-5.5	<2	Low-------	0.10	5	1	2-7
	5-13	0-5	1.35-1.55	6.0-20	0.03-0.08	3.6-5.5	<2	Low-------	0.10			
	13-17	3-10	1.35-1.50	0.6-2.0	0.10-0.15	3.6-5.5	<2	Low-------	0.15			
	17-36	1-8	1.45-1.70	6.0-20	0.03-0.08	3.6-5.5	<2	Low-------	0.15			
	36-61	14-35	1.55-1.79	0.2-0.6	0.10-0.15	3.6-5.5	<2	Low-------	0.24			
	61-80	5-13	1.45-1.60	0.6-2.0	0.07-0.10	3.6-5.5	<2	Low-------	0.10			
14--------------- Pottsburg	0-7	1-4	1.20-1.45	6.0-20	0.05-0.15	3.6-6.5	<2	Low-------	0.10	5	1	.5-3
	7-51	0-4	1.40-1.70	6.0-20	0.03-0.10	3.6-6.5	<2	Low-------	0.10			
	51-80	1-6	1.55-1.70	0.6-2.0	0.10-0.25	3.6-6.0	<2	Low-------	0.15			
15, 16----------- Valdosta	0-9	3-8	1.35-1.50	6.0-20	0.05-0.09	4.5-6.0	<2	Low-------	0.10	5	1	.5-1
	9-58	8-15	1.35-1.55	6.0-20	0.03-0.09	4.5-6.0	<2	Low-------	0.17			
	58-80	10-20	1.35-1.55	6.0-20	0.03-0.07	4.5-6.0	<2	Low-------	0.17			
17, 18----------- Wadley	0-70	1-5	1.35-1.65	6.0-20	0.02-0.06	4.5-6.0	<2	Low-------	0.10	5	1	<1
	70-80	13-35	1.55-1.65	0.6-2.0	0.10-0.13	4.5-6.0	<2	Low-------	0.20			
19:												
Valdosta--------	0-9	3-8	1.35-1.50	6.0-20	0.05-0.09	4.5-6.0	<2	Low-------	0.10	5	1	.5-1
	9-58	8-15	1.35-1.55	6.0-20	0.03-0.09	4.5-6.0	<2	Low-------	0.17			
	58-80	10-20	1.35-1.55	6.0-20	0.03-0.07	4.5-6.0	<2	Low-------	0.17			

Table 13.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
19:												
Lowndes---------	0-32	5-15	1.20-1.45	2.0-6.0	0.05-0.09	4.5-6.0	<2	Low-------	0.15	5	2	.5-2
	32-45	18-30	1.35-1.55	0.6-2.0	0.10-0.16	4.5-6.0	<2	Low-------	0.24			
	45-80	20-40	1.35-1.55	0.6-2.0	0.10-0.18	4.5-6.0	<2	Low-------	0.28			
20--------------- Pamlico	0-25	<10	0.40-0.65	0.6-6.0	0.24-0.26	3.6-4.4	<2	Low-------	0.10	2	2	20-80
	25-80	5-10	1.60-1.75	6.0-20	0.03-0.06	3.6-5.5	<2	Low-------	0.10			
21:												
Plummer---------	0-14	1-7	0.40-0.65	0.6-6.0	0.20-0.25	3.6-4.4	<2	Low-------	0.10	5	8	15-80
	14-52	1-7	1.35-1.65	2.0-20	0.03-0.20	3.6-5.5	<2	Low-------	0.10			
	52-80	15-30	1.50-1.70	0.2-2.0	0.07-0.15	3.6-5.5	<2	Low-------	0.15			
Surrency--------	0-12	<10	1.50-1.70	6.0-20	0.05-0.10	3.6-5.5	<2	Low-------	0.10	5	8	2-9
	12-32	<10	1.50-1.65	2.0-20	0.05-0.10	3.6-5.5	<2	Low-------	0.10			
	32-80	10-23	1.60-1.85	0.6-6.0	0.06-0.10	3.6-5.5	<2	Low-------	0.15			
22--------------- Alpin	0-3	1-12	1.35-1.55	2.0-6.0	0.05-0.10	4.5-6.0	<2	Low-------	0.10	5	2	0-2
	3-47	1-7	1.40-1.55	6.0-20.0	0.03-0.09	4.5-6.0	<2	Low-------	0.10			
	47-80	5-8	1.45-1.65	2.0-6.0	0.06-0.09	4.5-6.0	<2	Low-------	0.10			
23--------------- Blanton	0-54	5-13	1.35-1.60	6.0-20	0.05-0.10	4.5-6.0	<2	Low-------	0.10	5	2	.5-2
	54-80	12-40	1.60-1.70	0.2-2.0	0.10-0.15	4.5-5.5	<2	Low-------	0.20			
24--------------- Ocilla	0-34	4-10	1.45-1.65	2.0-20	0.05-0.08	4.5-5.5	<2	Low-------	0.10	5	2	1-2
	34-52	15-35	1.55-1.70	0.6-2.0	0.09-0.12	4.5-5.5	<2	Low-------	0.24			
	52-80	15-40	1.55-1.70	0.2-2.0	0.09-0.12	4.5-5.5	<2	Low-------	0.24			
25:												
Wampee----------	0-6	4-15	1.40-1.60	2.0-20	0.05-0.10	4.5-7.3	<2	Low-------	0.10	5	2	1-4
	6-26	2-15	1.40-1.60	2.0-20	0.02-0.10	4.5-6.5	<2	Low-------	0.15			
	26-51	10-30	1.30-1.50	0.6-2.0	0.10-0.15	4.5-6.5	<2	Low-------	0.20			
	51-80	18-45	1.20-1.40	0.2-0.6	0.10-0.20	4.5-6.5	<2	Low-------	0.24			
Blanton---------	0-54	1-7	1.30-1.60	6.0-20	0.03-0.07	4.5-6.0	<2	Low-------	0.10	5	1	.5-1
	54-80	12-40	1.60-1.70	0.2-2.0	0.10-0.15	4.5-5.5	<2	Low-------	0.20			
26:												
Mascotte--------	0-5	0-5	1.20-1.50	6.0-20	0.05-0.15	3.6-5.5	<2	Low-------	0.10	5	1	3-8
	5-12	0-5	1.35-1.55	6.0-20	0.03-0.10	3.6-5.5	<2	Low-------	0.10			
	12-35	3-10	1.35-1.50	2.0-6.0	0.15-0.25	3.6-5.5	<2	Low-------	0.15			
	35-80	14-35	1.55-1.79	0.2-0.6	0.10-0.18	3.6-5.5	<2	Low-------	0.24			
Plummer---------	0-52	1-7	1.35-1.65	6.0-20	0.03-0.08	3.6-5.5	<2	Low-------	0.10	5	1	1-3
	52-80	15-30	1.50-1.70	0.2-2.0	0.07-0.15	3.6-5.5	<2	Low-------	0.15			
27--------------- Kenansville	0-23	3-10	1.50-1.70	6.0-20	0.04-0.10	4.5-6.0	<2	Low-------	0.15	5	2	.5-2
	23-58	5-18	1.30-1.50	0.6-6.0	0.10-0.16	4.5-6.0	<2	Low-------	0.15			
	58-80	1-10	1.50-1.70	6.0-20	<0.05	4.5-6.0	<2	Low-------	0.10			
28--------------- Wampee	0-6	4-15	1.40-1.60	2.0-20	0.05-0.10	4.5-7.3	<2	Low-------	0.10	5	2	1-4
	6-26	2-15	1.40-1.60	2.0-20	0.02-0.10	4.5-6.5	<2	Low-------	0.15			
	26-80	18-45	1.20-1.40	0.2-0.6	0.10-0.20	4.5-6.5	<2	Low-------	0.24			
29--------------- Bonneau	0-25	2-8	1.30-1.70	6.0-20	0.04-0.08	4.5-6.0	<2	Low-------	0.10	5	1	.5-2
	25-50	13-35	1.40-1.60	0.6-2.0	0.10-0.15	4.5-5.5	<2	Low-------	0.20			
	50-80	15-40	1.40-1.60	0.6-2.0	0.10-0.16	4.5-5.5	<2	Low-------	0.20			

Table 13.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink- swell potential	Erosion factors K	Erosion factors T	Wind erodi- bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
31:												
Wampee----------	0-6	4-15	1.40-1.60	2.0-20	0.05-0.10	4.5-7.3	<2	Low-------	0.10	5	2	1-4
	6-26	2-15	1.40-1.60	2.0-20	0.02-0.10	4.5-6.5	<2	Low-------	0.15			
	26-80	10-30	1.30-1.50	0.6-2.0	0.10-0.15	4.5-6.5	<2	Low-------	0.20			
Blanton---------	0-54	1-7	1.30-1.60	6.0-20	0.03-0.07	4.5-6.0	<2	Low-------	0.10	5	1	.5-1
	54-80	12-40	1.60-1.70	0.2-2.0	0.10-0.15	4.5-5.5	<2	Low-------	0.20			
32--------------- Norfolk	0-6	2-8	1.55-1.70	6.0-20	0.06-0.11	3.6-6.0	<2	Low-------	0.17	5	2	.5-2
	6-80	18-35	1.30-1.65	0.6-2.0	0.10-0.18	3.6-5.5	<2	Low-------	0.24			
33--------------- Pelham	0-25	1-8	1.50-1.70	6.0-20	0.04-0.07	3.6-5.5	<2	Low-------	0.10	5	1	1-2
	25-32	15-30	1.30-1.60	0.6-2.0	0.10-0.13	3.6-5.5	<2	Low-------	0.24			
	32-80	15-40	1.30-1.60	0.2-2.0	0.10-0.16	3.6-5.5	<2	Low-------	0.24			
34--------------- Plummer	0-52	1-7	1.35-1.65	6.0-20	0.03-0.08	3.6-5.5	<2	Low-------	0.10	5	1	1-3
	52-80	15-30	1.50-1.70	0.2-2.0	0.07-0.15	3.6-5.5	<2	Low-------	0.15			
35--------------- Wahee	0-5	5-20	1.30-1.60	0.6-2.0	0.10-0.15	4.5-6.0	<2	Low-------	0.24	5	3	.5-5
	5-80	---	---	---	---	---	<2	----------	----			
36--------------- Blanton	0-54	1-7	1.35-1.60	2.0-6.0	0.08-0.12	4.5-6.0	<2	Low-------	0.10	5	1	.5-2
	54-80	12-30	1.70-1.90	0.2-2.0	0.07-0.15	4.5-5.5	<2	Low-------	0.24			
37--------------- Eunola	0-6	3-11	1.45-1.70	2.0-6.0	0.06-0.11	4.5-5.5	<2	Low-------	0.15	5	2	.5-2
	6-68	18-35	1.35-1.65	0.6-2.0	0.12-0.17	4.5-5.5	<2	Low-------	0.28			
	68-80	2-11	1.45-1.75	6.0-20	0.02-0.06	4.5-5.5	<2	Low-------	0.20			
46--------------- Stockade	0-9	10-15	1.40-1.70	0.6-2.0	0.15-0.20	4.5-6.5	<2	Low-------	0.20	5	3	3-6
	9-54	18-30	1.40-1.70	0.06-0.6	0.12-0.17	4.5-8.4	<2	Low-------	0.28			
	54-80	---	---	2.0-20.0	---	---	---	----------	----			
47--------------- Goldhead	0-4	1-5	1.30-1.50	6.0-20	0.05-0.15	4.5-7.8	<2	Low-------	0.10	5	2	1-4
	4-36	1-5	1.35-1.50	6.0-20	0.02-0.05	4.5-7.8	<2	Low-------	0.10			
	36-80	13-34	1.45-1.65	0.6-2.0	0.10-0.20	4.5-8.4	<2	Low-------	0.24			
48--------------- Bivans	0-16	5-12	1.05-1.65	0.6-6.0	0.10-0.20	3.6-6.5	<2	Low-------	0.15	5	2	1-4
	16-80	25-48	1.25-1.85	<0.2	0.05-0.15	3.6-6.0	<2	High------	0.20			
49:												
Otela-----------	0-52	0-5	1.45-1.65	6.0-20	0.05-0.10	4.5-7.3	<2	Low-------	0.10	5	1	<2
	52-80	8-35	1.55-1.75	0.2-2.0	0.06-0.15	3.6-7.8	<2	Low-------	0.20			
Alpin-----------	0-4	1-12	1.35-1.55	2.0-6.0	0.05-0.10	4.5-6.5	<2	Low-------	0.10	5	1	0-2
	4-47	1-7	1.40-1.55	6.0-20	0.03-0.09	4.5-6.5	<2	Low-------	0.10			
	47-80	5-8	1.45-1.65	2.0-6.0	0.06-0.09	4.5-6.5	<2	Low-------	0.10			
51--------------- Bigbee	0-9	1-10	1.40-1.50	6.0-20	0.05-0.10	4.5-6.0	<2	Low-------	0.10	5	1	.5-2
	9-80	1-10	1.40-1.50	6.0-20	0.05-0.08	4.5-6.0	<2	Low-------	0.17			
52--------------- Pelham	0-25	1-8	1.50-1.70	6.0-20	0.04-0.07	3.6-5.5	<2	Low-------	0.10	5	1	1-2
	25-80	15-30	1.30-1.60	0.6-2.0	0.10-0.13	3.5-5.5	<2	Low-------	0.24			
54--------------- Pits	0-60	---	---	---	---	---	<2	----------	----	---	8	---
56:												
Bibb------------	0-2	2-18	1.40-1.65	0.6-2.0	0.15-0.20	3.6-5.5	<2	Low-------	0.28	5	5	1-3
	2-80	2-18	1.45-1.75	0.6-2.0	0.10-0.20	3.6-5.5	<2	Low-------	0.37			

Table 13.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Wind erodi-bility group	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm					Pct
56:												
Bigbee----------	0-9	1-10	1.40-1.50	6.0-20	0.05-0.10	4.5-6.0	<2	Low-------	0.10	5	1	.5-2
	9-80	1-10	1.40-1.50	6.0-20	0.05-0.08	4.5-6.0	<2	Low-------	0.17			
57--------------- Osier	0-8	1-10	1.35-1.60	6.0-20	0.03-0.10	3.6-6.0	<2	Low-------	0.10	5	2	2-5
	8-80	2-5	1.40-1.60	>20	0.02-0.05	3.6-6.0	<2	Low-------	0.05			
58--------------- Sapelo	0-19	2-5	1.40-1.65	6.0-20	0.03-0.07	3.6-5.5	<2	Low-------	0.10	5	1	1-3
	19-28	3-7	1.35-1.60	0.6-2.0	0.10-0.15	3.6-5.5	<2	Low-------	0.15			
	28-48	3-6	1.50-1.70	6.0-20	0.03-0.07	3.6-5.5	<2	Low-------	0.17			
	48-80	10-30	1.55-1.75	0.2-2.0	0.12-0.17	3.6-5.5	<2	Low-------	0.24			
59--------------- Dorovan	0-55	---	0.35-0.55	0.6-2.0	0.20-0.25	3.6-4.4	<2	Low-------	0.10	2	2	20-80
	55-80	5-20	1.40-1.65	6.0-20	0.05-0.08	4.5-5.5	<2	Low-------	----			
60:												
Alpin-----------	0-4	1-12	1.35-1.55	2.0-6.0	0.05-0.10	4.5-6.5	<2	Low-------	0.10	5	1	0-2
	4-47	1-7	1.40-1.55	6.0-20	0.03-0.09	4.5-6.5	<2	Low-------	0.10			
	47-80	5-8	1.45-1.65	2.0-6.0	0.06-0.09	4.5-6.5	<2	Low-------	0.10			
Shadeville------	0-3	2-10	1.40-1.60	6.0-20	0.05-0.10	4.5-7.3	<2	Low-------	0.10	4	1	.5-2
	3-38	2-10	1.45-1.70	6.0-20	0.05-0.10	4.5-7.3	<2	Low-------	0.10			
	38-72	14-35	1.45-1.70	0.6-2.0	0.10-0.15	4.5-8.4	<2	Low-------	0.20			
61--------------- Arents	0-80	1-5	1.30-1.70	>20	0.02-0.05	3.6-6.5	<2	Low-------	0.10	5	1	<1
62:												
Resota----------	0-80	0-3	1.30-1.60	>20	0.02-0.05	3.6-6.5	<2	Low-------	0.10	5	1	<1
Blanton---------	0-54	1-7	1.35-1.60	2.0-6.0	0.08-0.12	4.5-6.0	<2	Low-------	0.10	5	1	.5-2
	54-80	12-30	1.70-1.90	0.2-2.0	0.07-0.15	4.5-5.5	<2	Low-------	0.24			
Bigbee----------	0-9	1-10	1.40-1.50	6.0-20	0.05-0.10	4.5-6.0	<2	Low-------	0.10	5	1	.5-2
	9-80	1-10	1.40-1.50	6.0-20	0.05-0.08	4.5-6.0	<2	Low-------	0.17			
63:												
Arents----------	0-80	1-5	1.30-1.70	>20	0.02-0.05	3.6-6.5	<2	Low-------	0.10	5	1	<1
Water.												
64--------------- Hydraquents	0-80	55-90	1.00-1.25	<0.06	0.15-0.20	7.9-8.4	<2	High------	0.32	5	4	<1
65--------------- Gypsum land	0-60	---	---	---	---	---	>8	----------	----	---	1	---
66--------------- Urban land	0-6	---	---	---	---	---	<2	----------	----	---	---	---
67--------------- Quartzipsamments	0-80	1-3	1.50-1.65	6.0-20	0.03-0.05	4.5-7.3	<2	Low-------	0.10	5	2	<.5

Table 14.--Soil and Water Features

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Ini-tial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
2----------- Albany	C	None------	---	---	1.0-2.5	Apparent	Dec-Mar	>60	---	---	---	High----	High.
3, 4--------- Alpin	A	None------	---	---	>6.0	---	---	>60	---	---	---	Low-----	High.
5, 6--------- Blanton	A	None------	---	---	4.0-6.0	Perched	Mar-Aug	>60	---	---	---	High----	High.
7----------- Kenansville	A	Occasional	Brief-----	Dec-Apr	>6.0	---	---	>60	---	---	---	Low-----	High.
8----------- Chipley	C	None------	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	---	---	Low-----	High.
9----------- Foxworth	A	None------	---	---	4.0-6.0	Apparent	Jun-Oct	>60	---	---	---	Low-----	Moderate.
10, 11------- Lowndes	A	None------	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.
12:													
Lowndes-----	A	None------	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.
Norfolk-----	B	None------	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	---	---	Moderate	High.
13---------- Mascotte	B/D	None------	---	---	0.5-1.5	Apparent	Mar-Sep	>60	---	---	---	High----	High.
14---------- Pottsburg	B/D	None------	---	---	0.5-1.0	Apparent	Mar-Sep	>60	---	---	---	High----	High.
15, 16------- Valdosta	A	None------	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.
17, 18------- Wadley	A	None------	---	---	>6.0	---	---	>60	---	---	---	Low-----	High.
19:													
Valdosta----	A	None------	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.
Lowndes-----	A	None------	---	---	>6.0	---	---	>60	---	---	---	Moderate	High.
20---------- Pamlico	D	None------	---	---	0-1.0	Apparent	Dec-May	>60	---	4-12	10-25	High----	High.
21:													
Plummer-----	B/D	None------	---	---	+2-1.0	Apparent	Dec-Jul	>60	---	---	---	Moderate	High.
Surrency----	D	None------	---	---	+1-0.5	Apparent	Jan-Dec	>60	---	---	---	High----	High.
22---------- Alpin	A	Occasional	Brief-----	Mar-Apr	>6.0	---	---	>60	---	---	---	Low-----	High.
23---------- Blanton	A	None------	---	---	4.0-6.0	Perched	Mar-Aug	>60	---	---	---	High----	High.

Table 14.--Soil and Water Features--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Ini-tial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
24----------- Ocilla	C	None------	---	---	1.0-2.5	Apparent	Dec-Apr	>60	---	---	---	High----	Moderate.
25:													
Wampee------	C	None------	---	---	1.0-3.0	Apparent	Jun-Dec	>60	---	---	---	High----	Moderate.
Blanton-----	A	None------	---	---	4.0-6.0	Perched	Mar-Aug	>60	---	---	---	High----	High.
26:													
Mascotte----	D	Occasional	Very long	Nov-Apr	0-1.0	Apparent	Feb-Sep	>60	---	---	---	High----	High.
Plummer-----	B/D	Occasional	Brief-----	Dec-Jul	0-1.0	Apparent	Dec-Jul	>60	---	---	---	Moderate	High.
27----------- Kenansville	A	None------	---	---	>6.0	---	---	>60	---	---	---	Low-----	High.
28----------- Wampee	C	None------	---	---	1.0-3.0	Apparent	Jun-Dec	>60	---	---	---	High----	Moderate.
29----------- Bonneau	A	None------	---	---	3.5-5.0	Apparent	Dec-Mar	>60	---	---	---	Low-----	High.
31:													
Wampee------	C	None------	---	---	1.0-3.0	Apparent	Jun-Dec	>60	---	---	---	High----	Moderate.
Blanton-----	A	None------	---	---	4.0-6.0	Perched	Mar-Aug	>60	---	---	---	High----	High.
32----------- Norfolk	B	None------	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	---	---	Moderate	High.
33----------- Pelham	B/D	None------	---	---	0-1.0	Apparent	Jan-Apr	>60	---	---	---	High----	High.
34----------- Plummer	B/D	None------	---	---	0-1.0	Apparent	Dec-Jul	>60	---	---	---	Moderate	High.
35----------- Wahee	D	Occasional	Very brief to brief.	Dec-Apr	0.5-1.5	Apparent	Dec-Mar	>60	---	---	---	High----	High.
36----------- Blanton	A	Occasional	Long------	Mar-Apr	5.0-6.0	Perched	Mar-Aug	>60	---	---	---	High----	High.
37----------- Eunola	C	Occasional	Very brief	Dec-Apr	1.5-2.5	Apparent	Nov-Mar	>60	---	---	---	Low-----	High.
46----------- Stockade	B/D	None------	---	---	0-1.0	Apparent	Jun-Mar	>60	---	---	---	High----	Moderate.
47----------- Goldhead	B/D	None------	---	---	0-1.0	Apparent	Jul-Mar	>60	---	---	---	High----	Moderate.
48----------- Bivans	D	None------	---	---	1.0-1.5	Perched	Jun-Sep	>60	---	---	---	High----	Moderate.
49:													
Otela-------	A	None------	---	---	4.0-6.0	Perched	Jul-Oct	>60	---	---	---	Low-----	Low.
Alpin-------	A	None------	---	---	>6.0	---	---	>60	---	---	---	Low-----	High.
51----------- Bigbee	A	Occasional	Brief-----	Jan-Mar	3.5-6.0	Apparent	Jan-Mar	>60	---	---	---	Low-----	Moderate.

Table 14.--Soil and Water Features--Continued

Soil name and map symbol	Hydro- logic group	Flooding			High water table			Bedrock		Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard- ness	Ini- tial	Total	Uncoated steel	Concrete
					Ft			In		In	In		
52----------- Pelham	B/D	Occasional	Brief-----	Dec-Mar	0-1.0	Apparent	Jan-Apr	>60	---	---	---	High----	High.
54----------- Pits	---	None------	---	---	>6.0	---	---	>60	---	---	---	---	---
56:													
Bibb--------	D	Occasional	Brief to long.	Dec-May	0.5-1.0	Apparent	Dec-Apr	>60	---	---	---	High----	Moderate.
Bigbee------	A	Occasional	Brief-----	Jan-Mar	3.5-6.0	Apparent	Jan-Mar	>60	---	---	---	Low-----	Moderate.
57----------- Osier	A/D	Occasional	Brief to long.	Dec-Apr	0-0.5	Apparent	Nov-Mar	>60	---	---	---	High----	High.
58----------- Sapelo	D	None------	---	---	0.5-1.5	Apparent	Nov-Apr	>60	---	---	---	High----	High.
59----------- Dorovan	D	None------	---	---	+1-0.5	Apparent	Jan-Dec	>60	---	6-12	51-80	High----	High.
60:													
Alpin-------	A	None------	---	---	>6.0	---	---	>60	---	---	---	Low-----	High.
Shadeville--	B	None------	---	---	4.0-6.0	Perched	Jul-Oct	40-72	Soft	---	---	Low-----	Moderate.
61----------- Arents	A	None------	---	---	>6.0	---	---	>60	---	---	---	Low-----	High.
62:													
Resota------	A	Occasional	Brief-----	Dec-Apr	3.5-5.0	Apparent	Dec-Apr	>60	---	---	---	Low-----	High.
Blanton-----	A	Occasional	Long------	Mar-Apr	5.0-6.0	Perched	Mar-Aug	>60	---	---	---	High----	High.
Bigbee------	A	Occasional	Brief-----	Jan-Mar	3.5-6.0	Apparent	Jan-Mar	>60	---	---	---	Low-----	Moderate.
63:													
Arents------	A	None------	---	---	>6.0	---	---	>60	---	---	---	Low-----	High.
Water.													
64----------- Hydraquents	D	None------	---	---	+2-1.0	Apparent	Jan-Dec	>60	---	---	---	High----	Low.
65----------- Gypsum land	C	None------	---	---	>6.0	---	---	>3	Soft	---	---	High----	High.
66----------- Urban land	---	None------	---	---	>2.0	---	---	>10	---	---	---	---	---
67----------- Quartzip- samments	A	None------	---	---	2.0-8.0	Apparent	---	>60	---	---	---	Low-----	High.

Table 15.--Classification of the Soils

Soil name	Family or higher taxonomic class
Albany	Loamy, siliceous, thermic Grossarenic Paleudults
Alpin	Thermic, coated Argic Quartzipsamments
Arents	Arents
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Bigbee	Thermic, coated Typic Quartzipsamments
Bivans	Fine, montmorillonitic, hyperthermic Typic Albaqualfs
Blanton	Loamy, siliceous, thermic Grossarenic Paleudults
Bonneau	Loamy, siliceous, thermic Arenic Paleudults
Chipley	Thermic, coated Aquic Quartzipsamments
Dorovan	Dysic, thermic Typic Medisaprists
Eunola	Fine-loamy, siliceous, thermic Aquic Hapludults
Foxworth	Thermic, coated Typic Quartzipsamments
Goldhead	Loamy, siliceous, thermic Arenic Endoaqualfs
Hydraquents	Hydraquents
Kenansville	Loamy, siliceous, thermic Arenic Hapludults
Lowndes	Loamy, siliceous, thermic Arenic Paleudults
Mascotte	Sandy, siliceous, thermic Ultic Alaquods
Norfolk	Fine-loamy, siliceous, thermic Typic Kandiudults
Ocilla	Loamy, siliceous, thermic Aquic Arenic Paleudults
Osier	Siliceous, thermic Typic Psammaquents
Otela	Loamy, siliceous, thermic Grossarenic Paleudalfs
Pamlico	Sandy or sandy-skeletal, siliceous, dysic, thermic Terric Medisaprists
Pelham	Loamy, siliceous, thermic Arenic Paleaquults
Plummer	Loamy, siliceous, thermic Grossarenic Paleaquults
Pottsburg	Sandy, siliceous, thermic Grossarenic Alaquods
Quartzipsamments	Thermic, uncoated Quartzipsamments
Resota	Thermic, uncoated Spodic Quartzipsamments
Sapelo	Sandy, siliceous, thermic Ultic Alaquods
Shadeville	Loamy, siliceous, thermic Arenic Hapludalfs
Stockade	Fine-loamy, mixed, thermic Typic Umbraqualfs
Surrency	Loamy, siliceous, thermic Arenic Umbric Paleaquults
Valdosta	Sandy, siliceous, thermic Psammentic Paleudults
Wadley	Loamy, siliceous, thermic Grossarenic Paleudults
Wahee	Clayey, mixed, thermic Aeric Endoaquults
Wampee	Loamy, siliceous, thermic Aquic Arenic Hapludalfs

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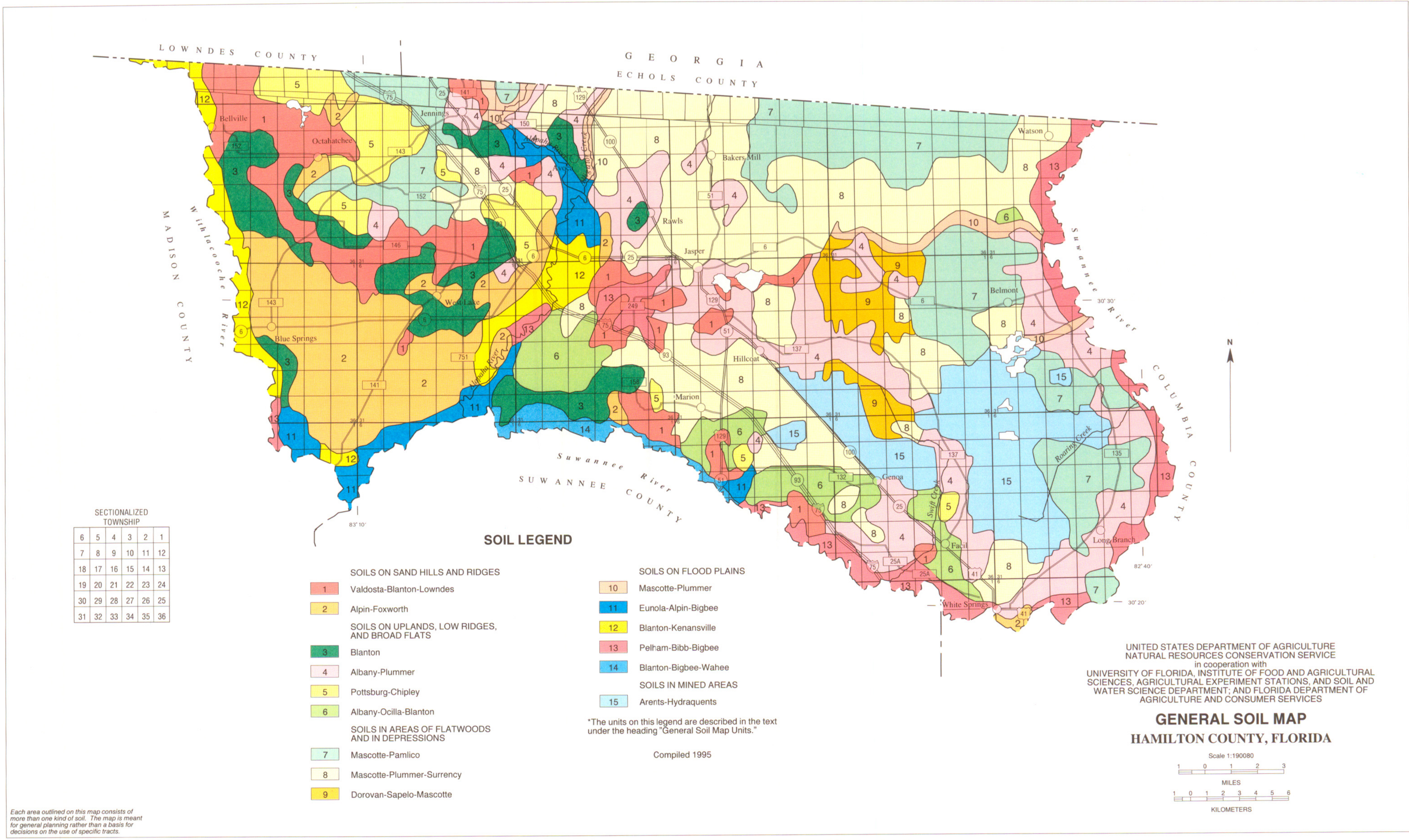
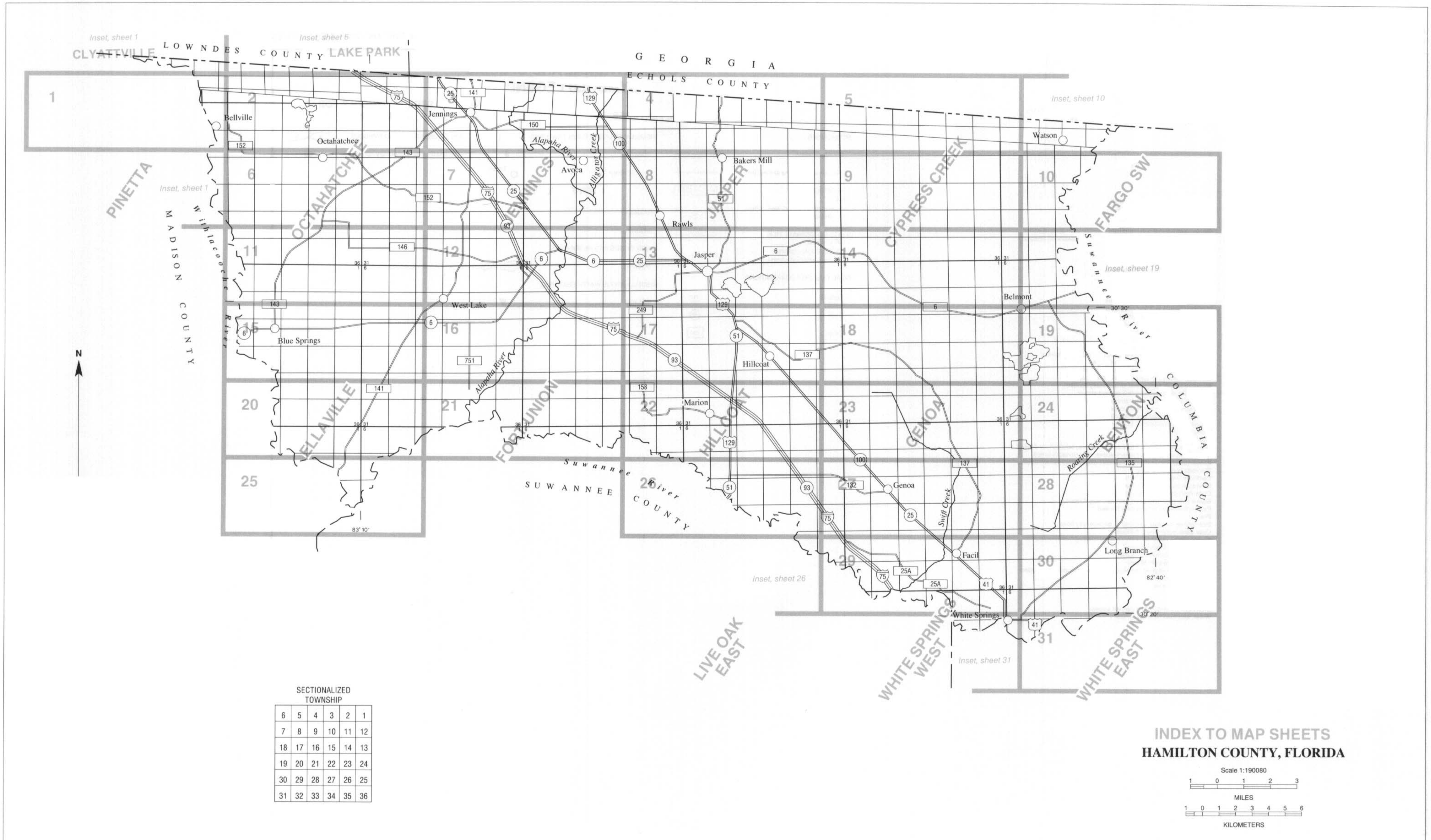


LOWNDES COUNTY
GEORGIA
ECHOLS COUNTY
MADISON COUNTY
Withlacoochee River
Suwannee River
SUWANNEE COUNTY
COLUMBIA COUNTY
Bellville
Octahatchee
Jennings
Avoca
Bakers Mill
Rawls
Jasper
Watson
Belmont
West Lake
Blue Springs
Hillcoat
Marion
Genoa
Facil
White Springs
Long Branch
Alapaha River
Swift Creek
Roaring Creek
N
30° 30'
30° 20'
82° 40'
83° 10'
SECTIONALIZED TOWNSHIP
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36
SOIL LEGEND
SOILS ON SAND HILLS AND RIDGES
1 Valdosta-Blanton-Lowndes
2 Alpin-Foxworth
SOILS ON UPLANDS, LOW RIDGES, AND BROAD FLATS
3 Blanton
4 Albany-Plummer
5 Pottsburg-Chipley
6 Albany-Ocilla-Blanton
SOILS IN AREAS OF FLATWOODS AND IN DEPRESSIONS
7 Mascotte-Pamlico
8 Mascotte-Plummer-Surrency
9 Dorovan-Sapelo-Mascotte
SOILS ON FLOOD PLAINS
10 Mascotte-Plummer
11 Eunola-Alpin-Bigbee
12 Blanton-Kenansville
13 Pelham-Bibb-Bigbee
14 Blanton-Bigbee-Wahee
SOILS IN MINED AREAS
15 Arents-Hydraquents
*The units on this legend are described in the text under the heading "General Soil Map Units."
Compiled 1995
Each area outlined on this map consists of more than one kind of soil. The map is meant for general planning rather than a basis for decisions on the use of specific tracts.
UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
in cooperation with
UNIVERSITY OF FLORIDA, INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES, AGRICULTURAL EXPERIMENT STATIONS, AND SOIL AND WATER SCIENCE DEPARTMENT; AND FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES
GENERAL SOIL MAP
HAMILTON COUNTY, FLORIDA
Scale 1:190080
1 0 1 2 3
MILES
1 0 1 2 3 4 5 6
KILOMETERS



INDEX TO MAP SHEETS
HAMILTON COUNTY, FLORIDA
Scale 1:190080
MILES
KILOMETERS
SECTIONALIZED TOWNSHIP
GEORGIA
LOWNDES COUNTY
ECHOLS COUNTY
MADISON COUNTY
SUWANNEE COUNTY
COLUMBIA COUNTY
CLYATTVILLE
LAKE PARK
PINETTA
OCTAHATCHEE
JENNINGS
JASPER
CYPRESS CREEK
FARGO SW
ELLAVILLE
FORT UNION
HILLCOAT
GENOA
BENTON
LIVE OAK EAST
WHITE SPRINGS WEST
WHITE SPRINGS EAST
Inset, sheet 1
Inset, sheet 5
Inset, sheet 10
Inset, sheet 19
Inset, sheet 26
Inset, sheet 31
Bellville
Octahatchee
Jennings
Avoca
Bakers Mill
Watson
Rawls
Jasper
Belmont
West Lake
Blue Springs
Hillcoat
Marion
Genoa
Facil
Long Branch
White Springs
Alapaha River
Alligator Creek
Withlacoochee River
Suwannee River
Roaring Creek
Swift Creek

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

UNIVERSITY OF FLORIDA, INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
AGRICULTURAL EXPERIMENT STATIONS, SOIL AND WATER SCIENCE DEPARTMENT
FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

SOIL LEGEND

Map symbols consist of numbers that represent the kind of soil. Soil map unit names without a slope phase are level or nearly level.

SYMBOL	NAME
2	Albany sand, 0 to 5 percent slopes
3	Alpin sand, 0 to 5 percent slopes
4	Alpin sand, 5 to 8 percent slopes
5	Blanton sand, 0 to 5 percent slopes
6	Blanton sand, 5 to 8 percent slopes
7	Kenansville fine sand, 0 to 5 percent slopes, occasionally flooded
8	Chipley sand, 0 to 5 percent slopes
9	Foxworth sand, 0 to 5 percent slopes
10	Lowndes sand, 0 to 5 percent slopes
11	Lowndes sand, 5 to 8 percent slopes
12	Lowndes and Norfolk soils, 8 to 12 percent slopes
13	Mascotte sand
14	Pottsburg sand
15	Valdosta sand, 0 to 5 percent slopes
16	Valdosta sand, 5 to 8 percent slopes
17	Wadley sand, 5 to 12 percent slopes
18	Wadley sand, 0 to 5 percent slopes
19	Valdosta-Lowndes complex, 12 to 20 percent slopes
20	Pamlico muck, depressional
21	Plummer and Surrency soils, depressional
22	Alpin fine sand, 0 to 5 percent slopes, occasionally flooded
23	Blanton loamy sand, 0 to 5 percent slopes
24	Ocilla loamy fine sand, 0 to 5 percent slopes
25	Wampee-Blanton complex, 8 to 12 percent slopes
26	Mascotte and Plummer soils, occasionally flooded
27	Kenansville loamy sand, 0 to 5 percent slopes
28	Wampee loamy sand, 5 to 8 percent slopes
29	Bonneau sand,0 to 5 percent slopes
31	Wampee-Blanton complex, 12 to 20 percent slopes
32	Norfolk loamy fine sand, 2 to 5 percent slopes
33	Pelham sand
34	Plummer sand
35	Wahee fine sandy loam, 0 to 4 percent slopes, occasionally flooded
36	Blanton fine sand, 0 to 5 percent slopes, occasionally flooded
37	Eunola loamy fine sand, 0 to 5 percent slopes, occasionally flooded
46	Stockade fine sandy loam
47	Goldhead fine sand, 0 to 5 percent slopes
48	Bivans loamy sand, 8 to 12 percent slopes
49	Otela-Alpin complex, 0 to 5 percent slopes
51	Bigbee fine sand, undulating, occasionally flooded
52	Pelham fine sand, occasionally flooded
54	Pits
56	Bibb-Bigbee complex, undulating, occasionally flooded
57	Osier sand, occasionally flooded
58	Sapelo sand
59	Dorovan muck, depressional
60	Alpin-Shadeville complex, karst
61	Arents, 0 to 5 percent slopes
62	Resota-Blanton-Bigbee complex, undulating, occasionally flooded
63	Arents-Water complex
64	Hydraquents, clayey
65	Gypsum land
66	Urban land
67	Quartzipsamments, 1 to 5 percent slopes
99	Water, less than 40 acres in size

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

County or parish

Field sheet matchline and neatline

AD HOC BOUNDARY (label)

Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER (sections and land grants)

ROAD EMBLEM & DESIGNATIONS

Federal 287

State 52

Other 1283

MISCELLANEOUS CULTURAL FEATURES

School

Located object (label) Tower

WATER FEATURES

DRAINAGE

Intermittent

LAKES, PONDS AND RESERVOIRS

Perennial

MISCELLANEOUS WATER FEATURES

Wet spot

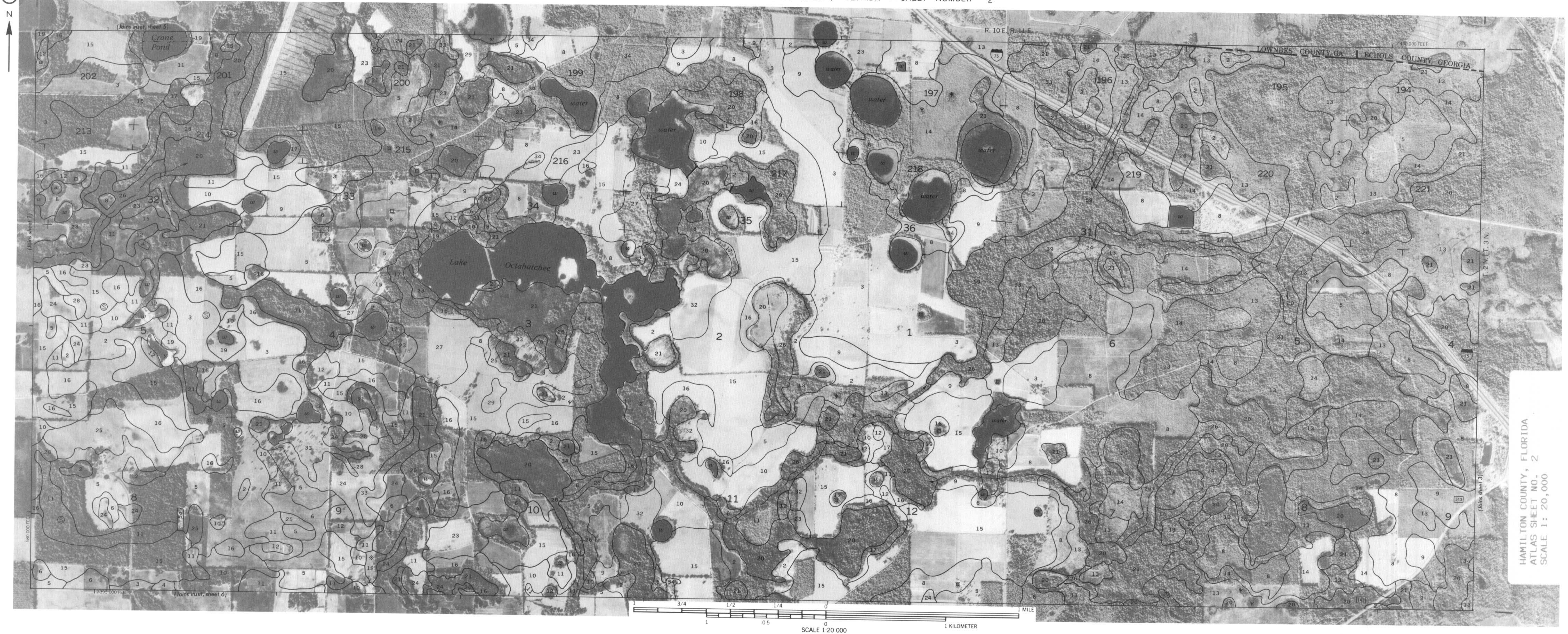
SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS 3 5

SOIL SAMPLE SITE (normally not shown)

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1983-1984 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

SOIL SURVEY OF HAMILTON COUNTY, FLORIDA — SHEET NUMBER 2



HAMILTON COUNTY, FLORIDA
ATLAS SHEET NO. 2
SCALE 1: 20,000

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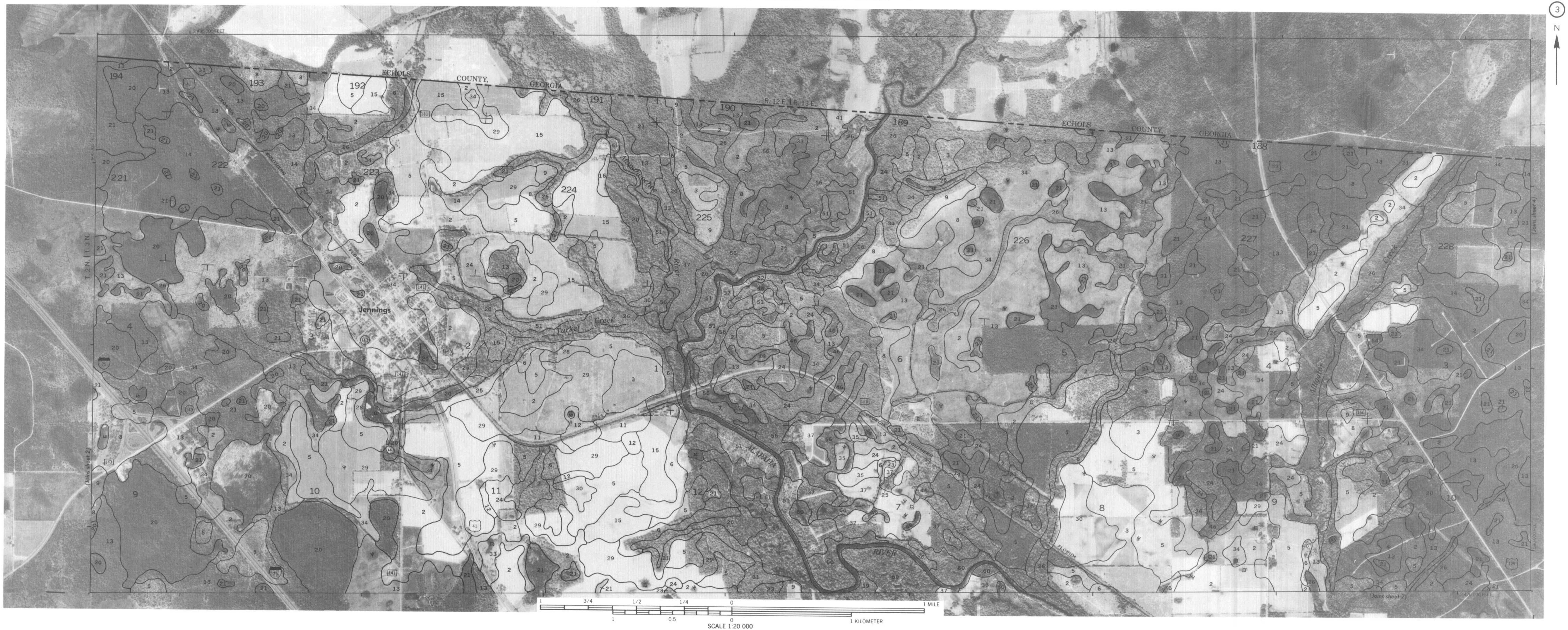

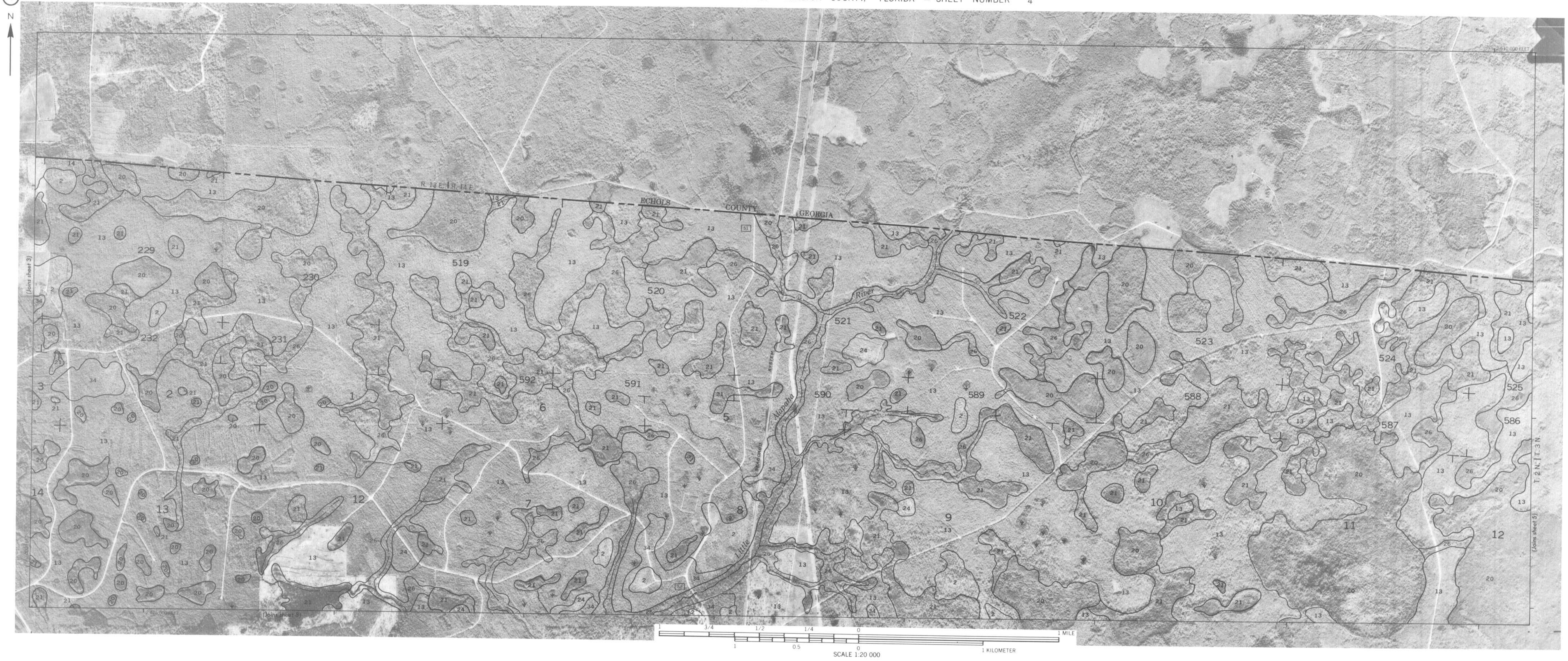

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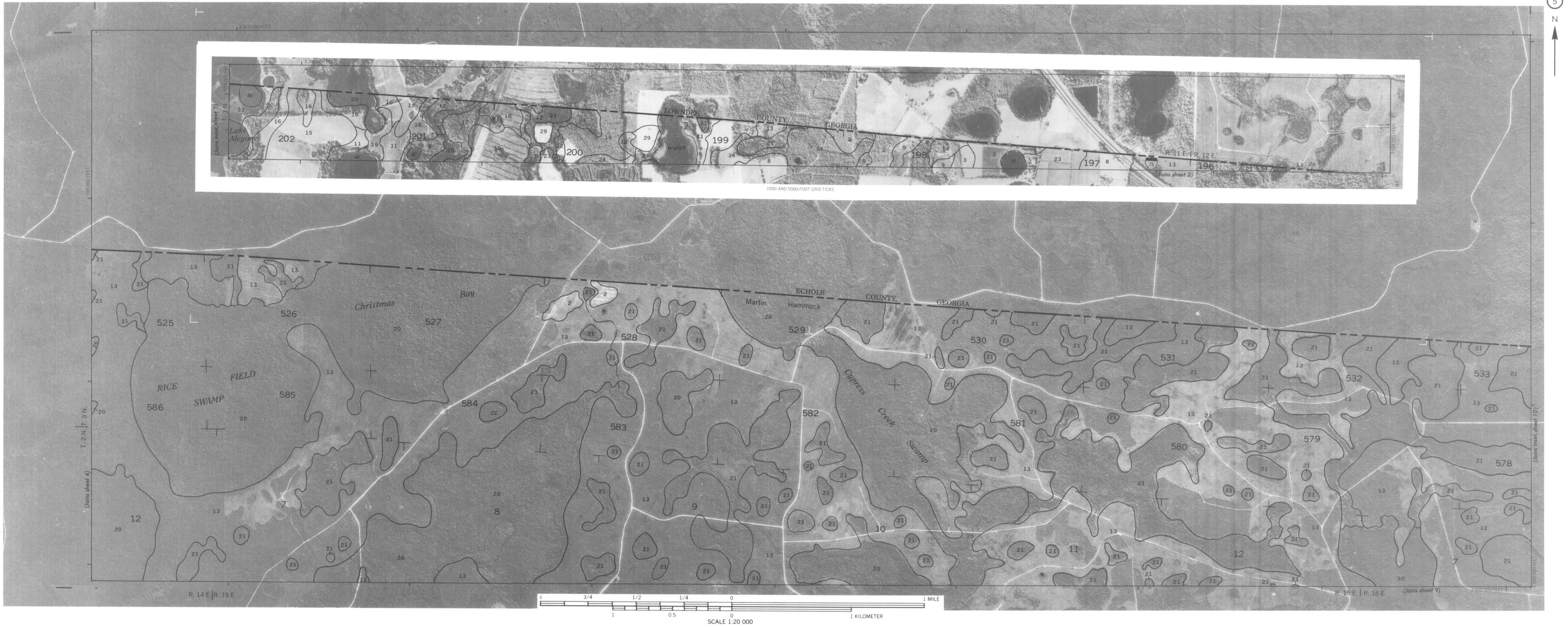

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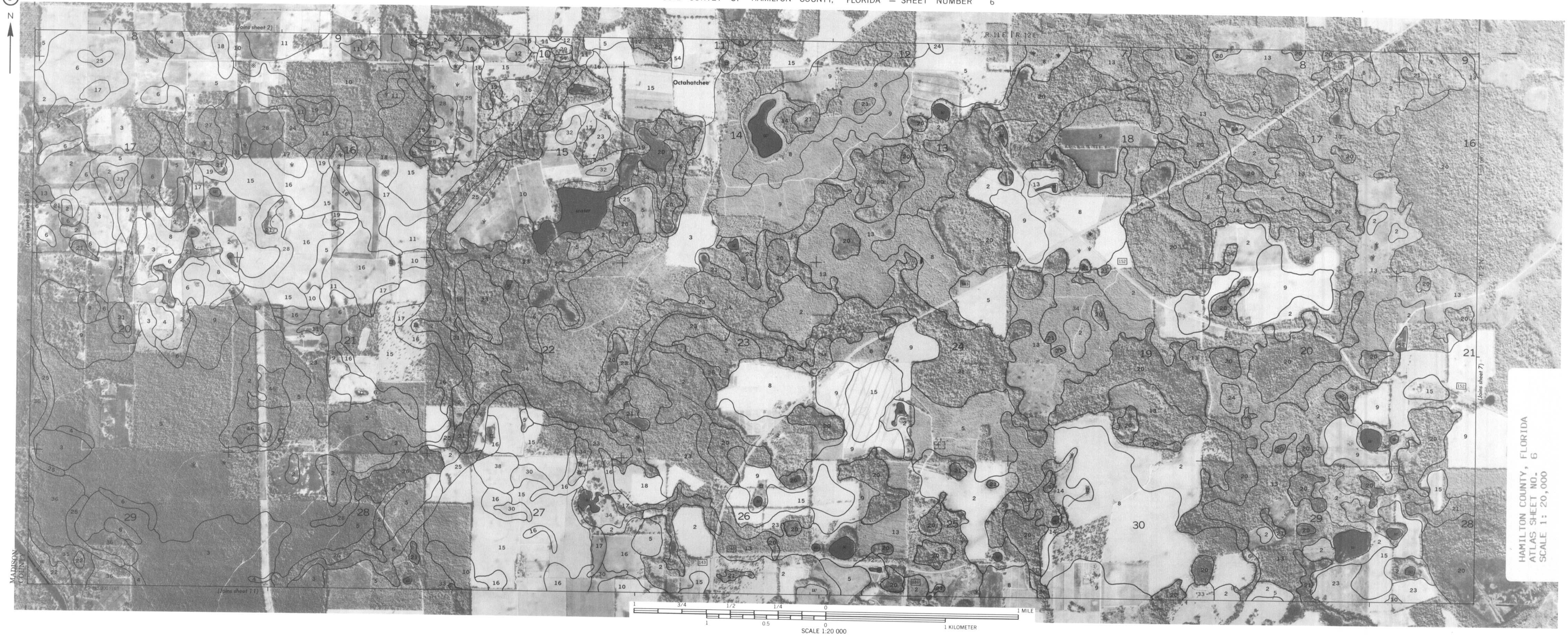

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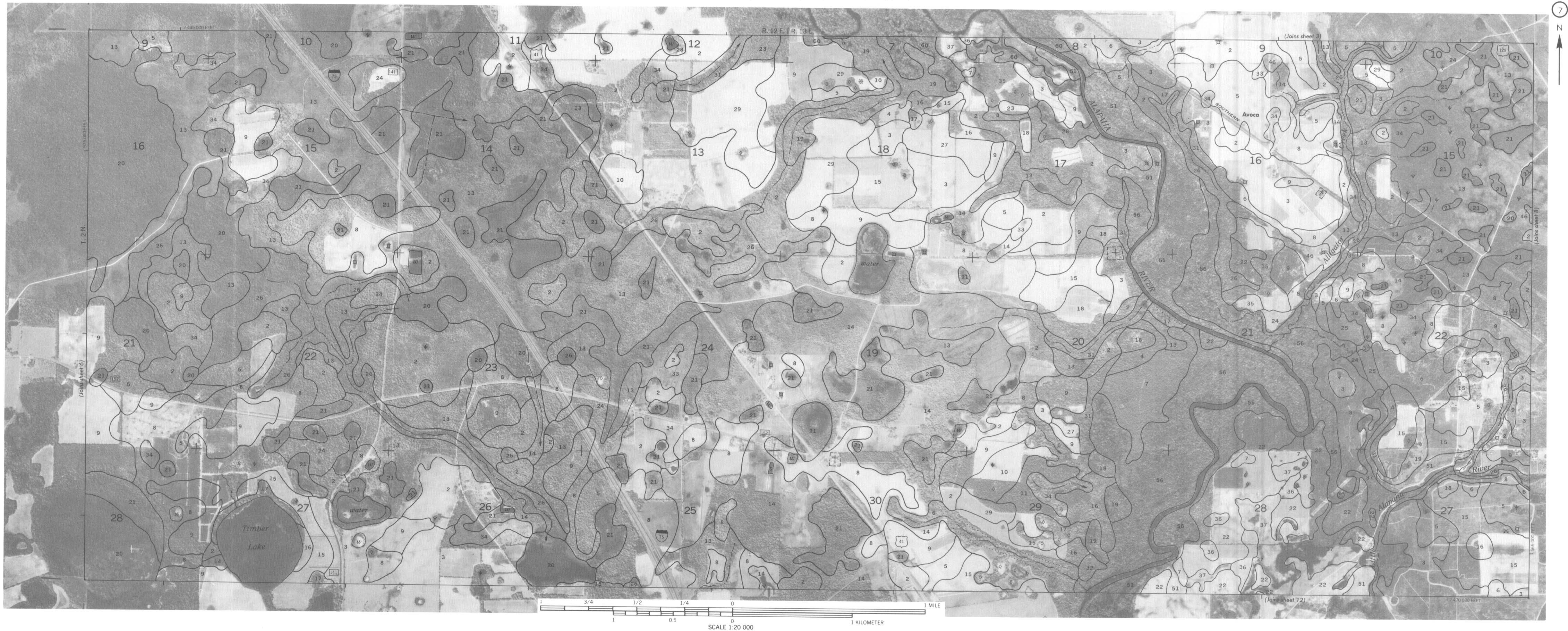

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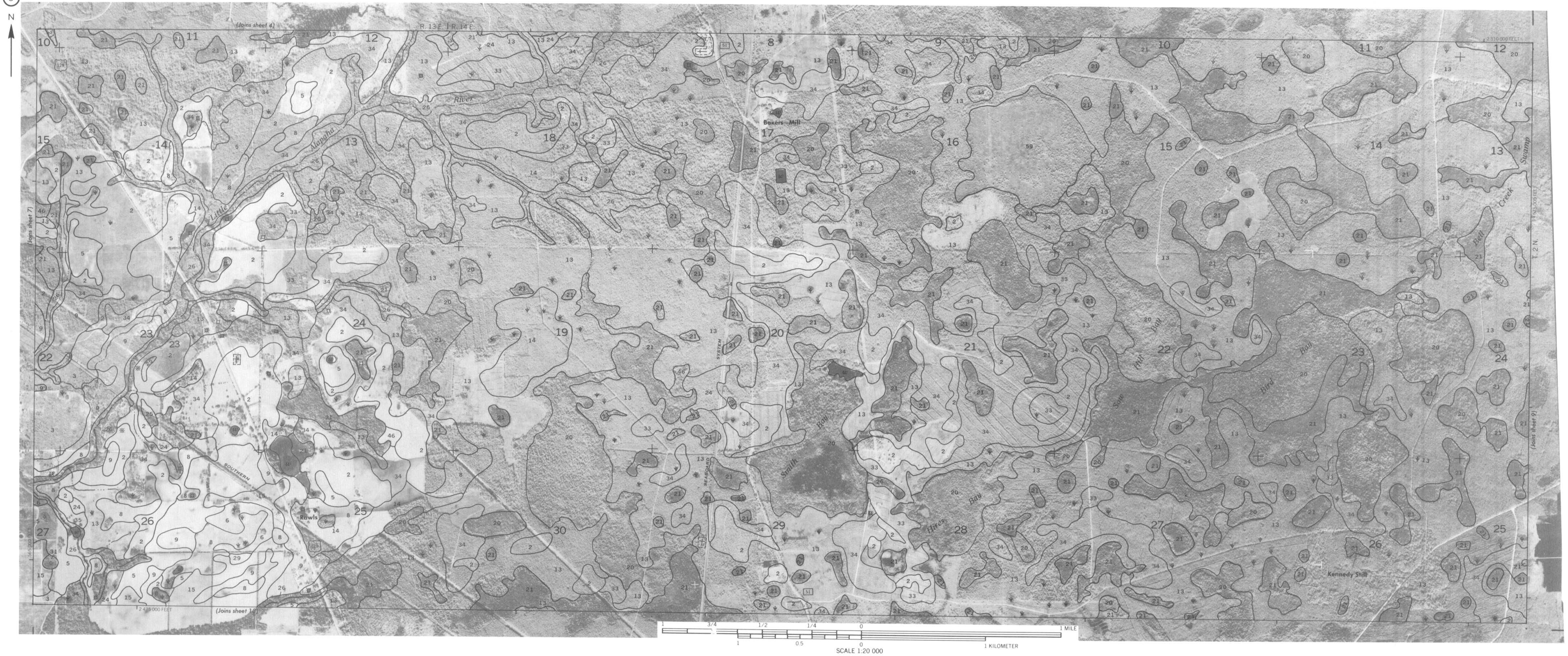

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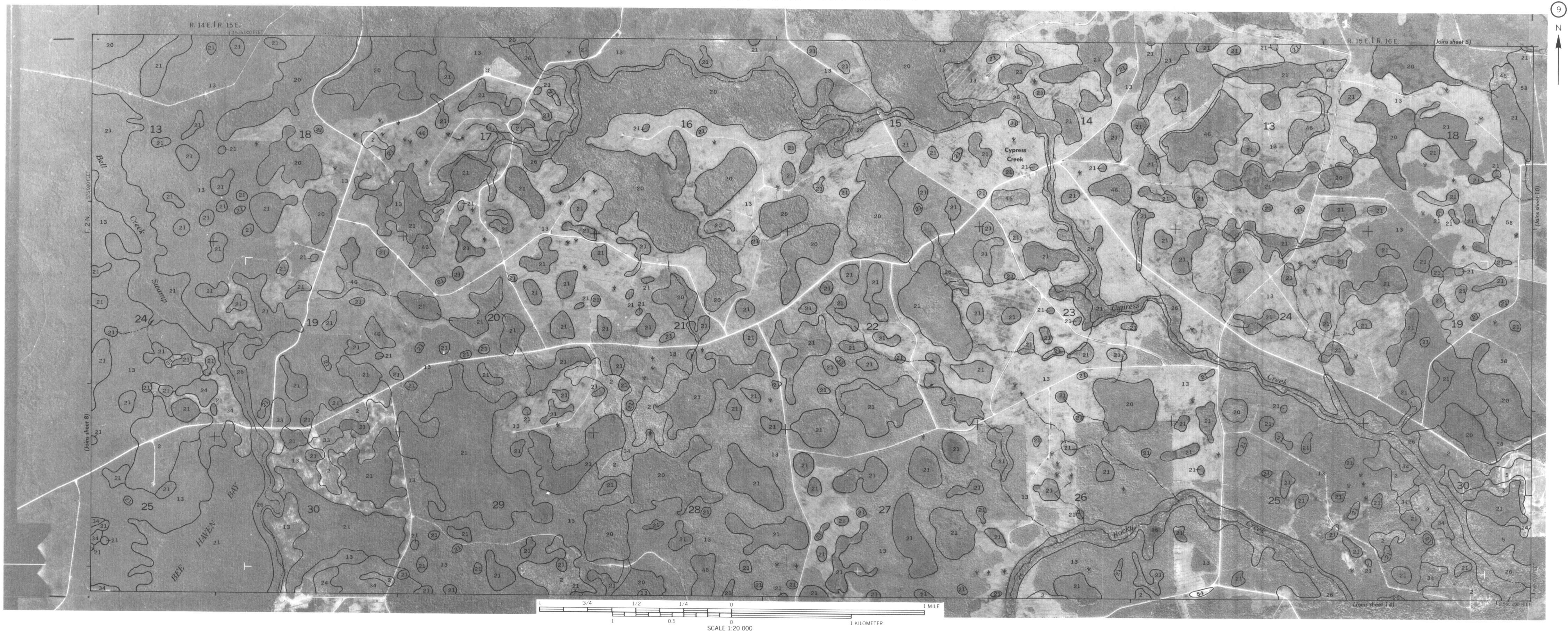

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1 3/4 1/2 1/4 0 1 MILE
1 0.5 0 1 KILOMETER
SCALE 1:20 000

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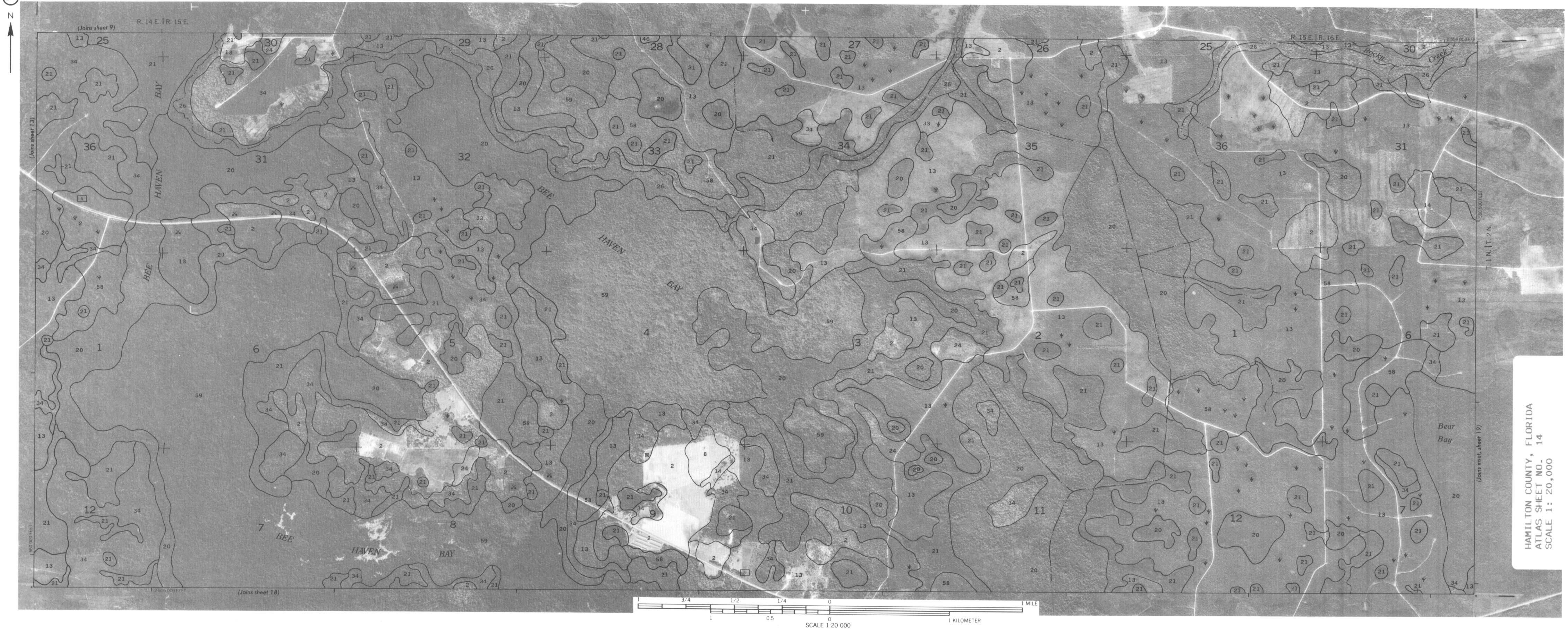

HAMILTON COUNTY, FLORIDA
ATLAS SHEET NO. 14
SCALE 1: 20,000

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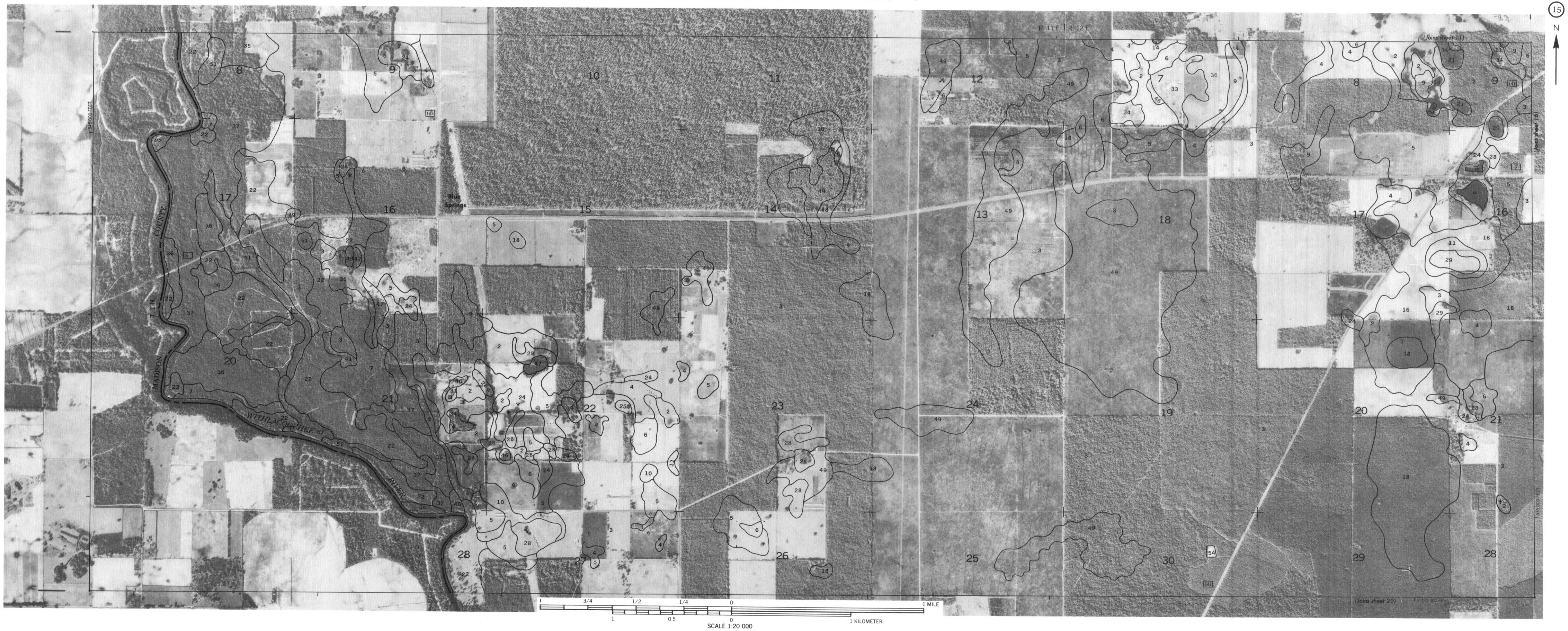
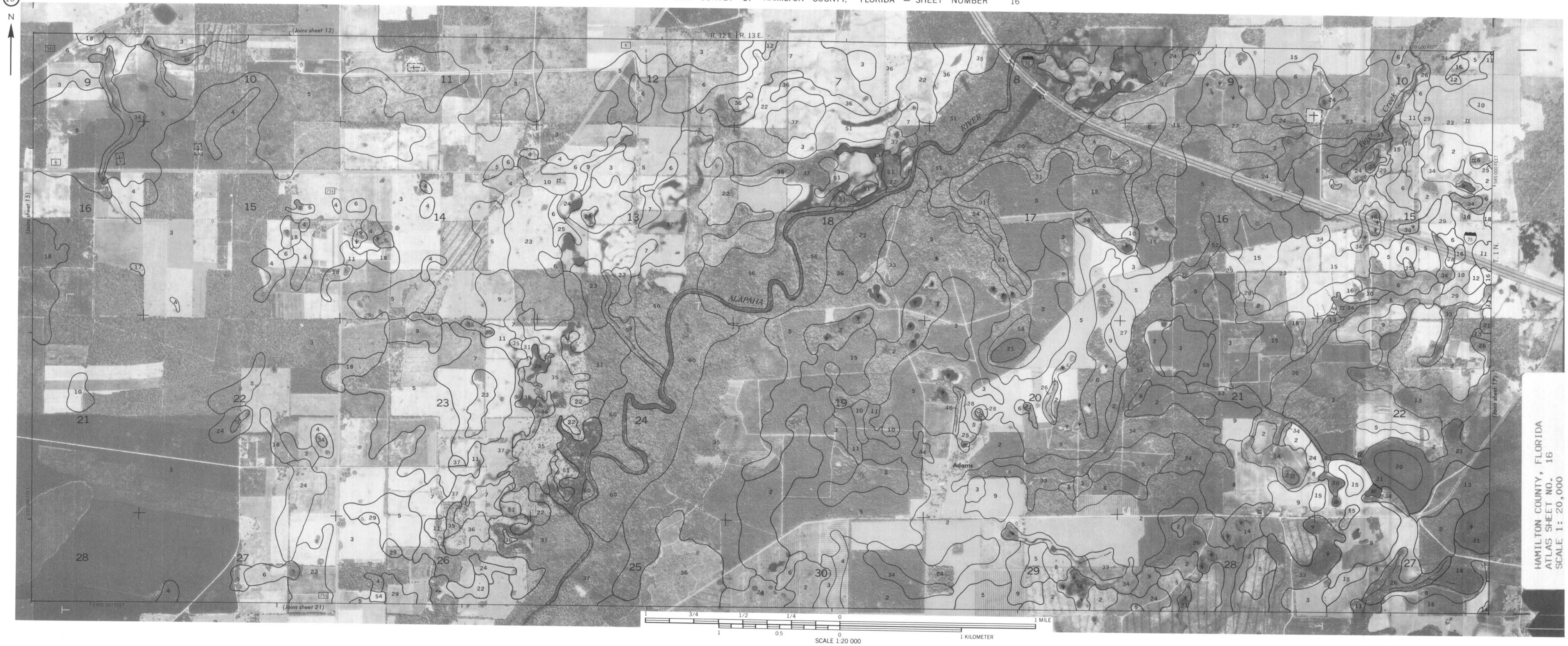


SOIL SURVEY OF HAMILTON COUNTY, FLORIDA — SHEET NUMBER 16



This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1983-1984 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

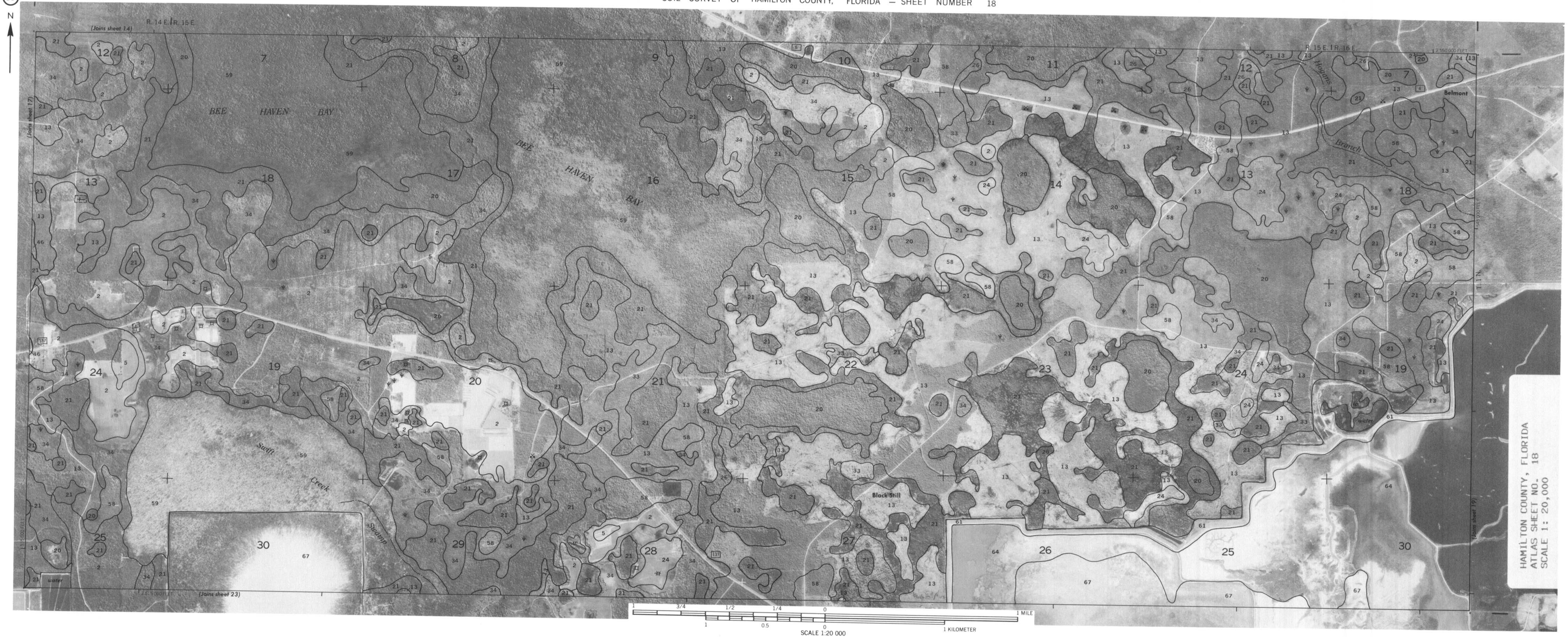
HAMILTON COUNTY, FLORIDA
ATLAS SHEET NO. 16
SCALE 1: 20,000

This soil survey map was compiled by the U.S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1983-1984 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000



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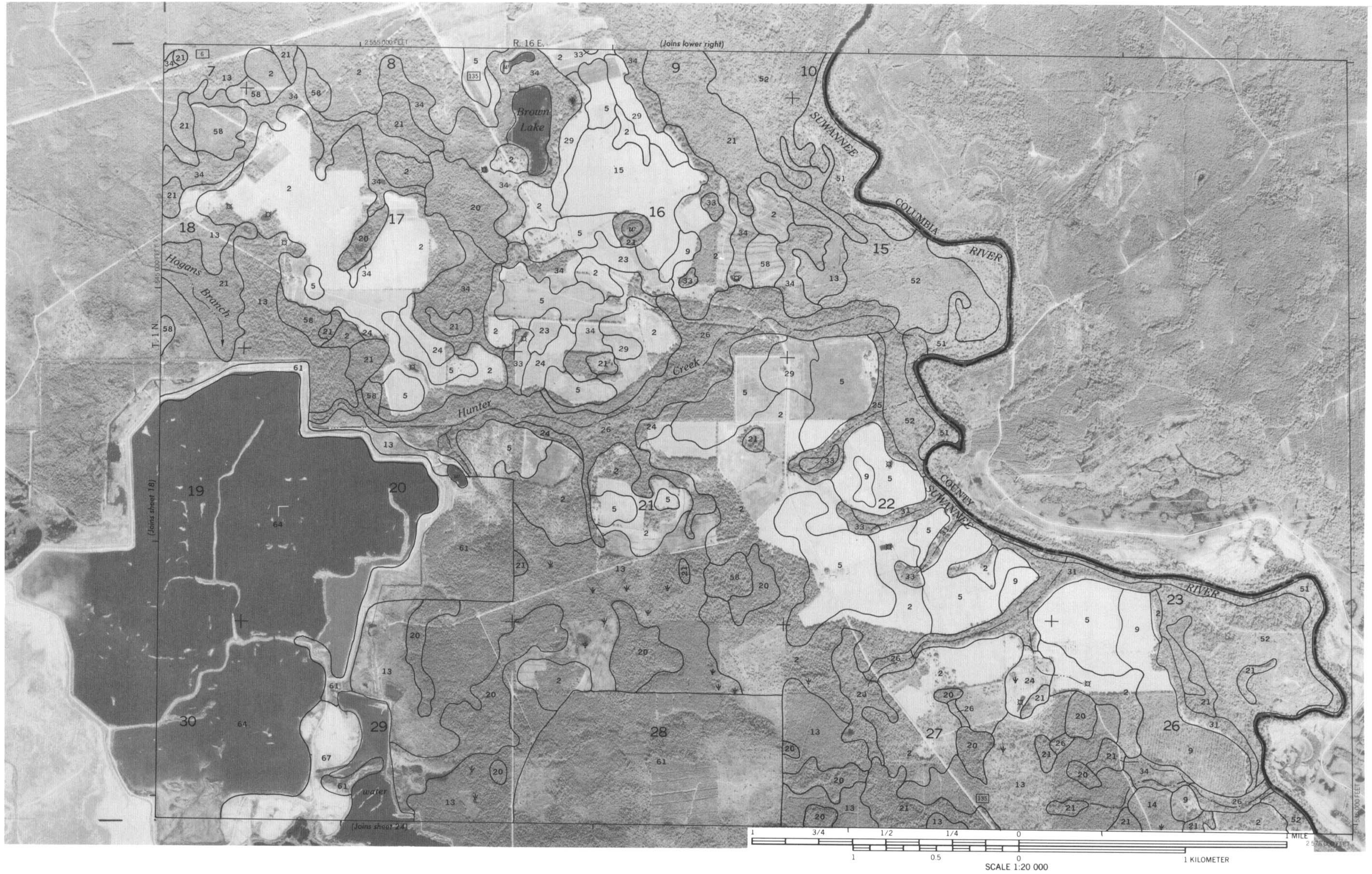

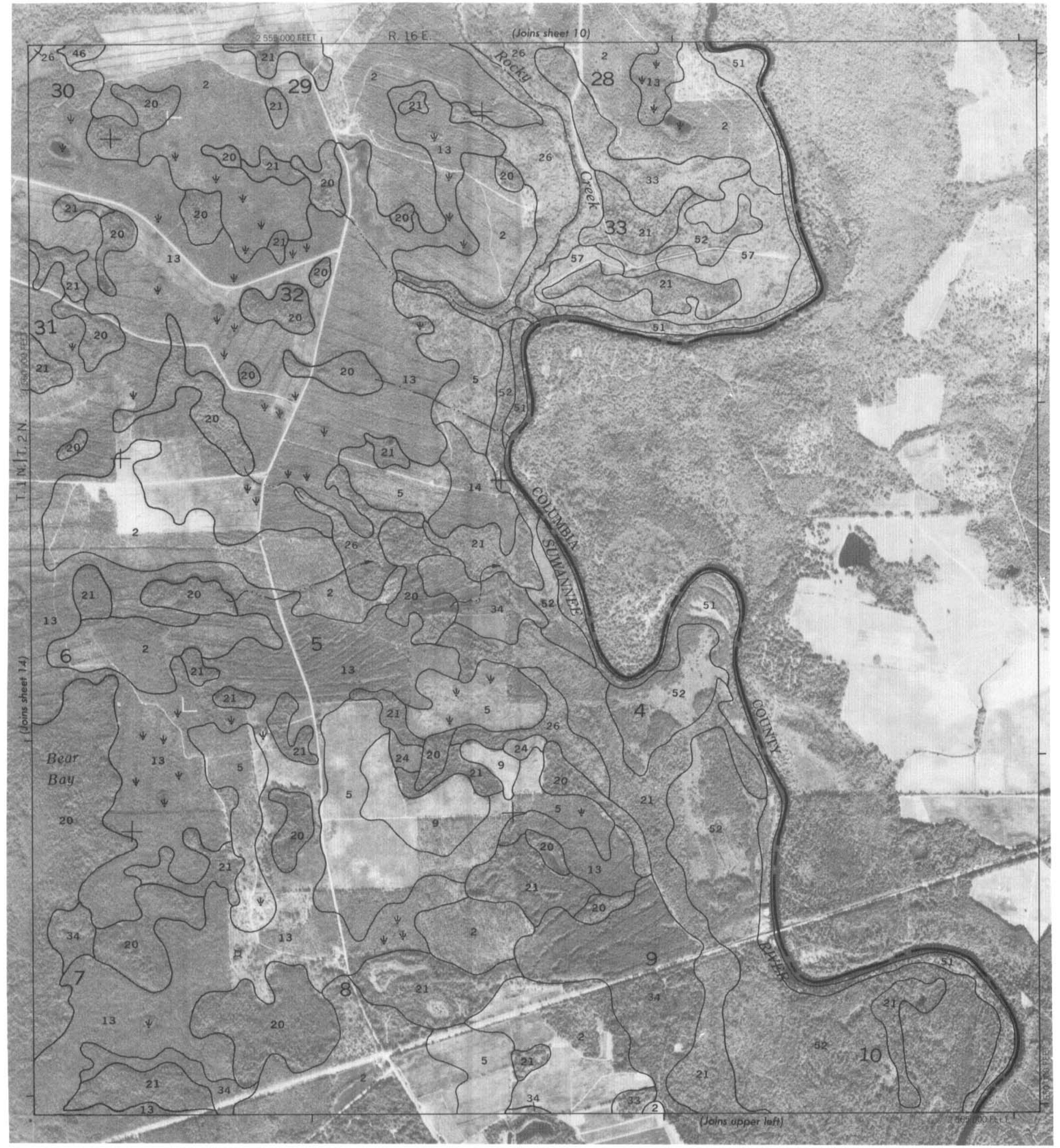

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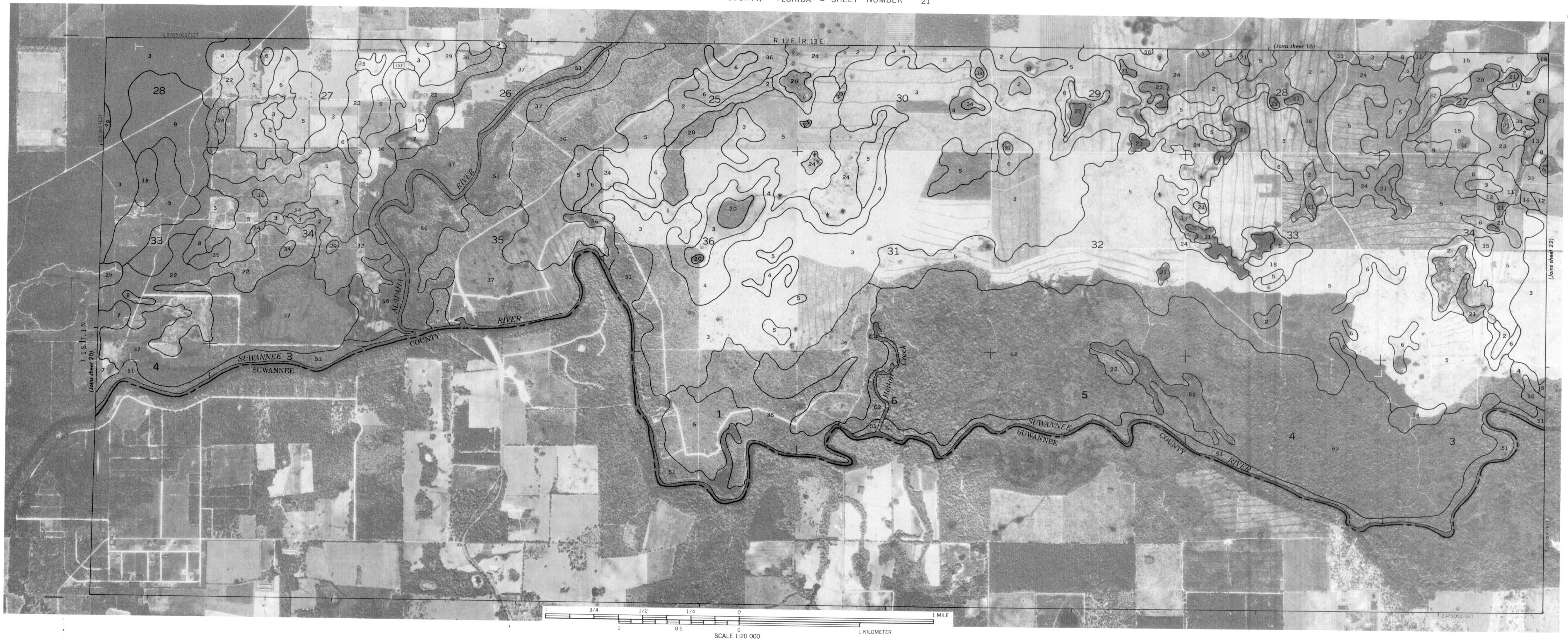
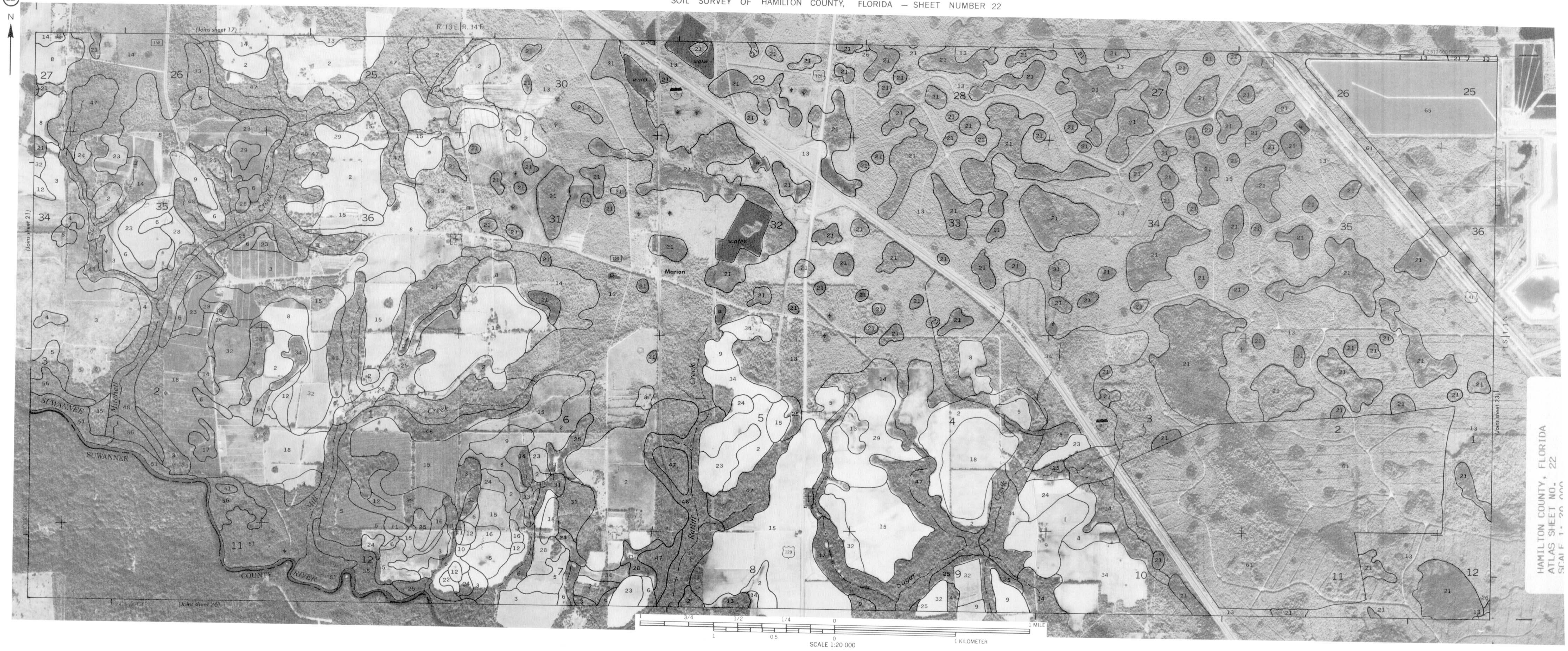


1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000



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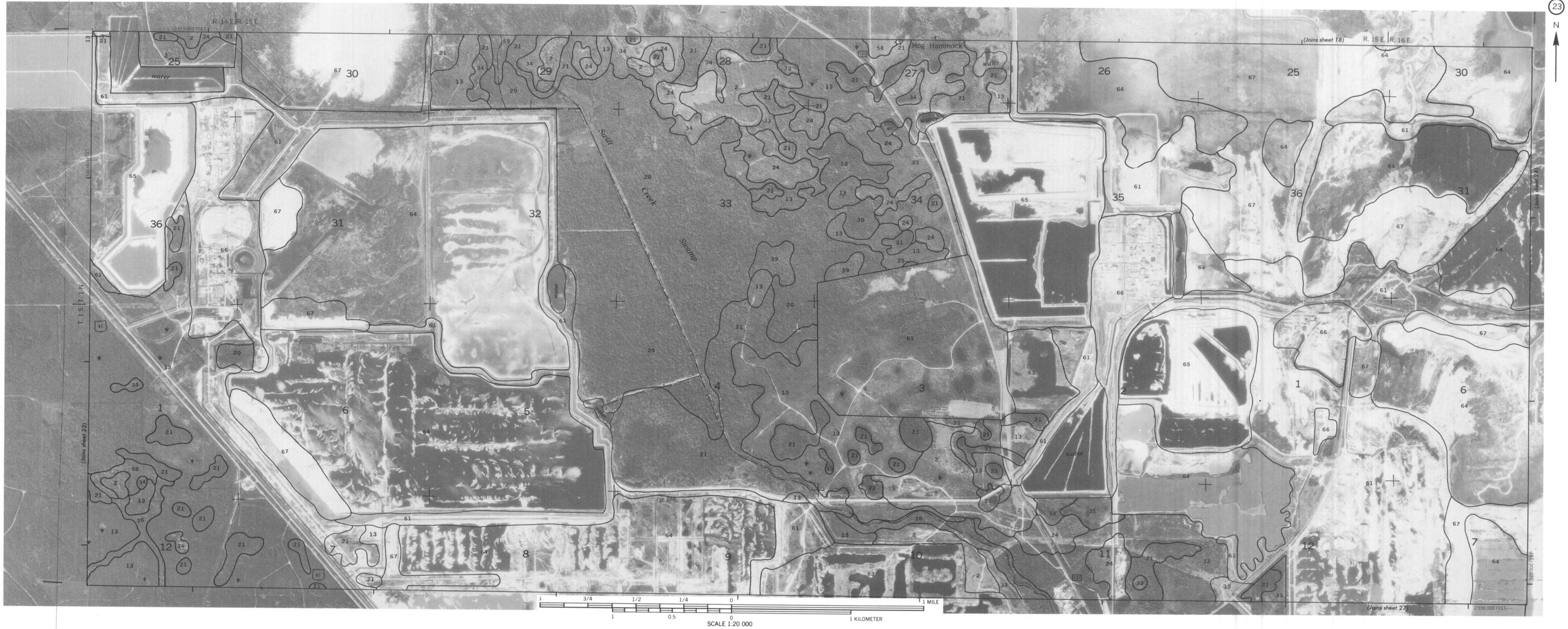

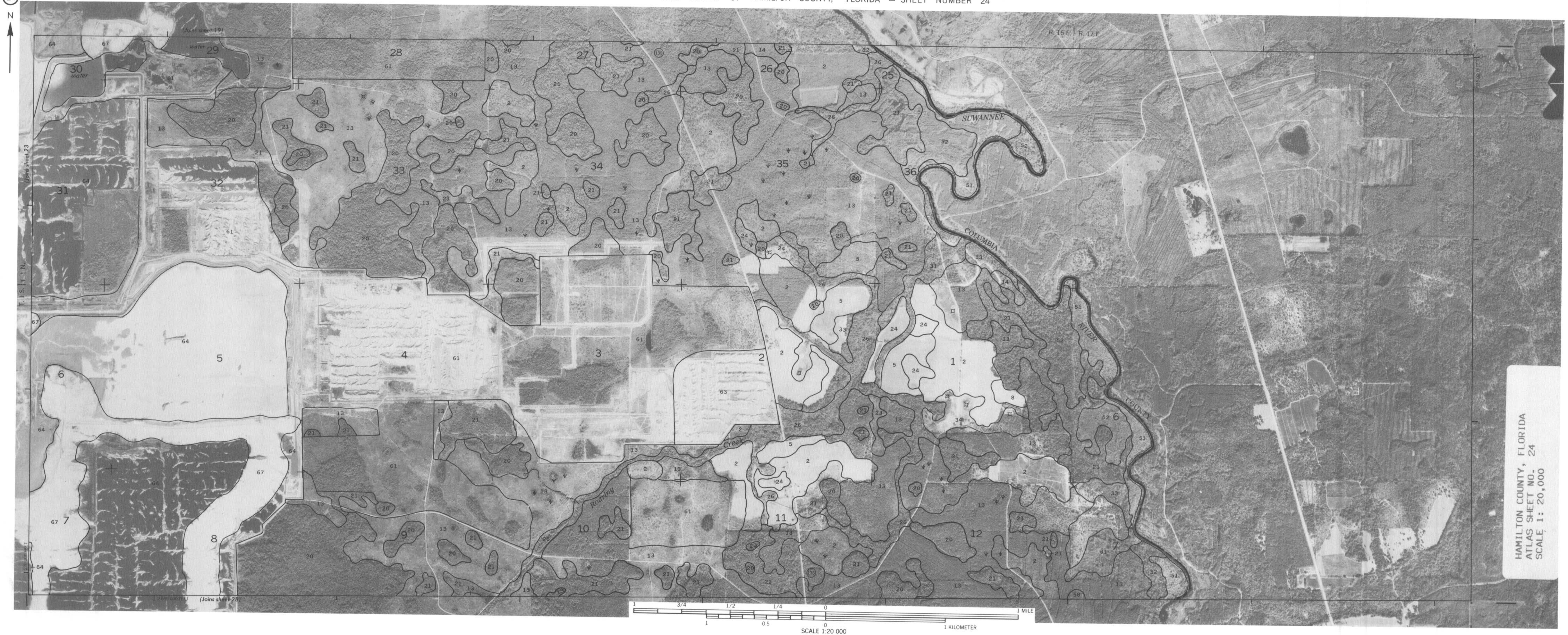

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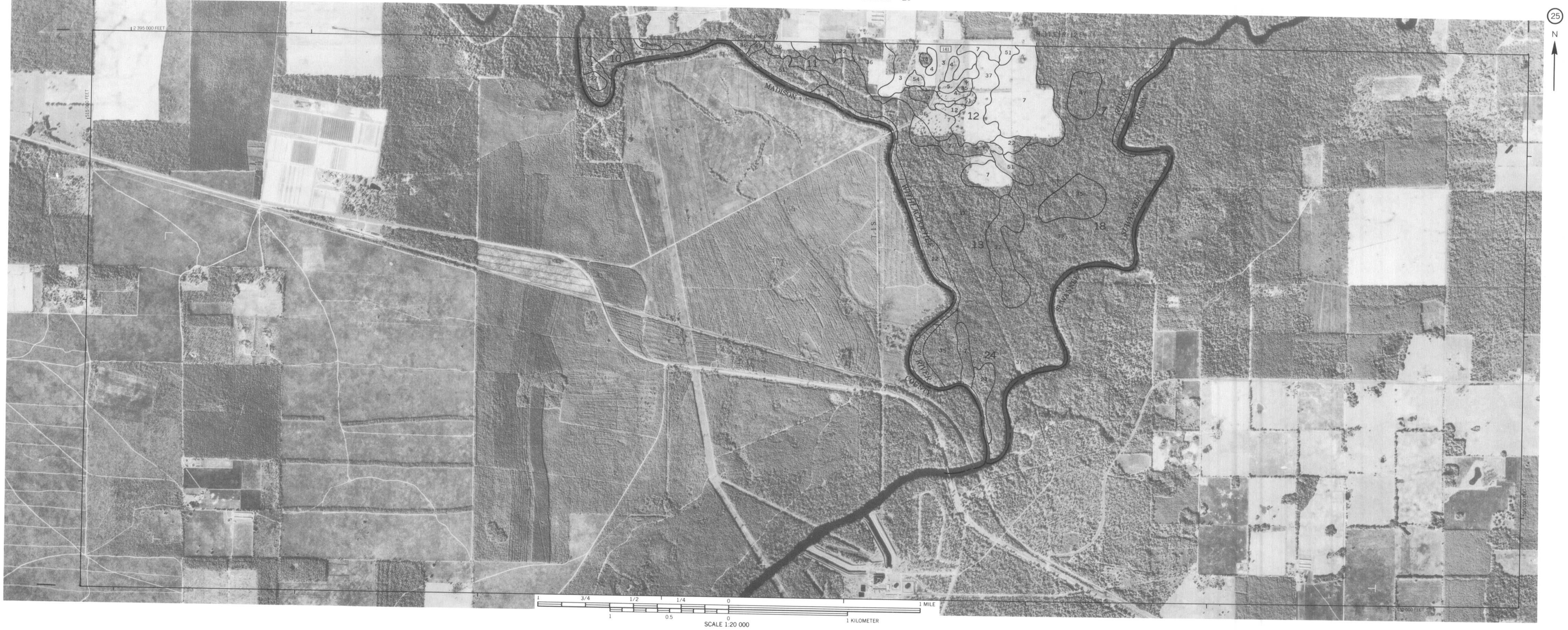

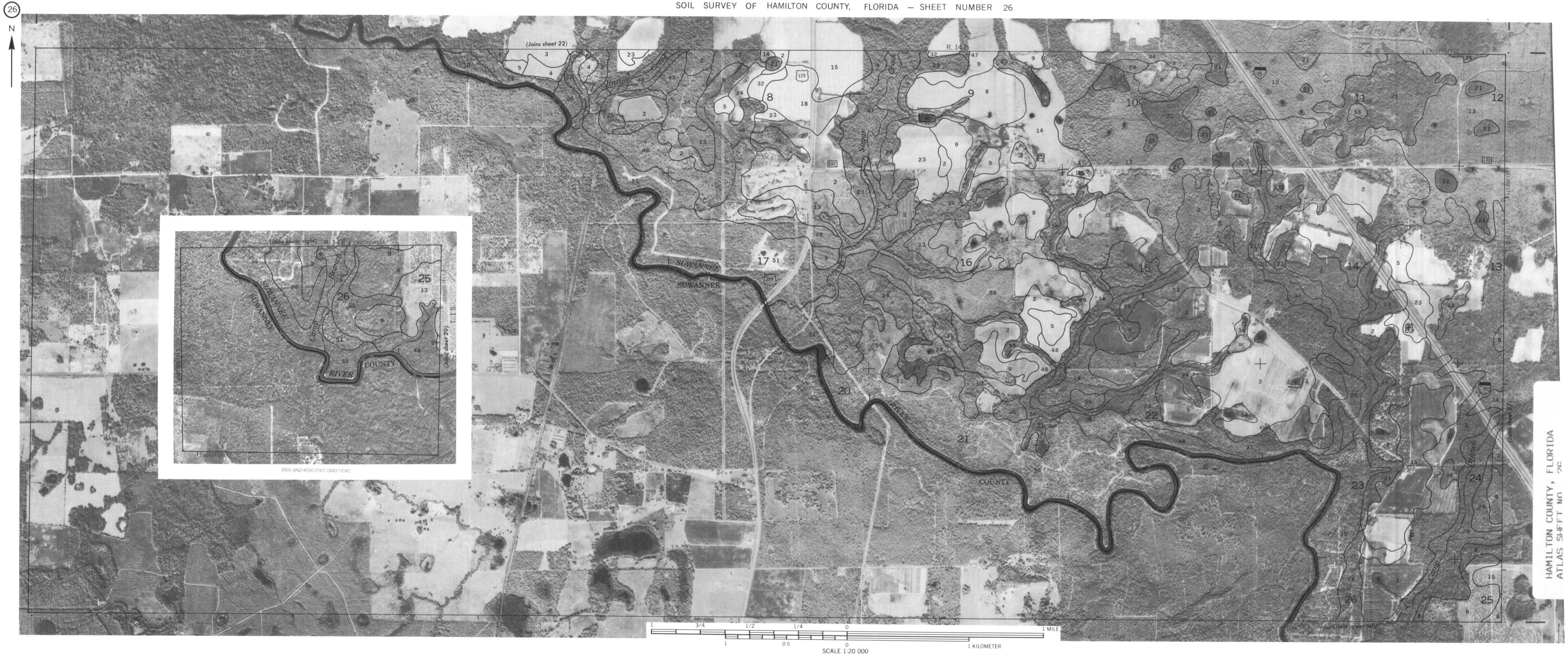

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HAMILTON COUNTY, FLORIDA
ATLAS SHEET NO. 26

27

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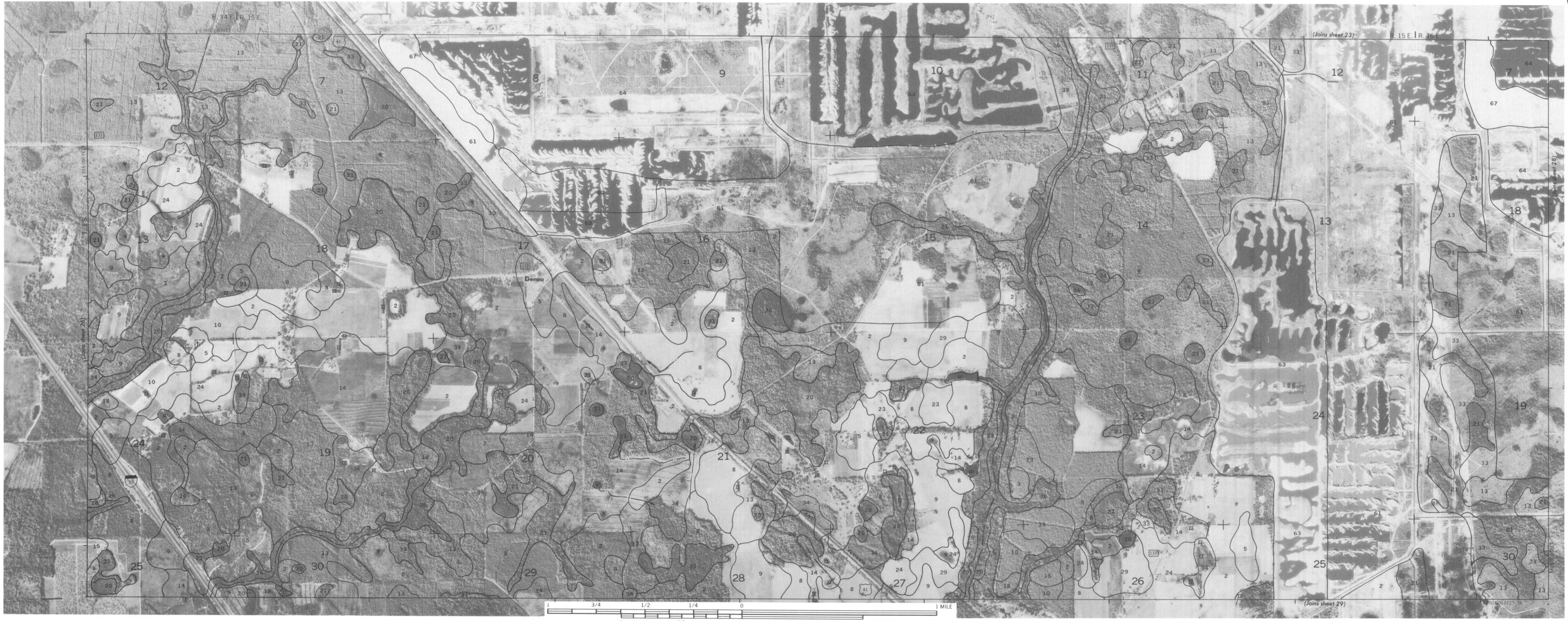

1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000

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HAMILTON COUNTY, FLORIDA
ATLAS SHEET NO. 28
SCALE 1: 20,000

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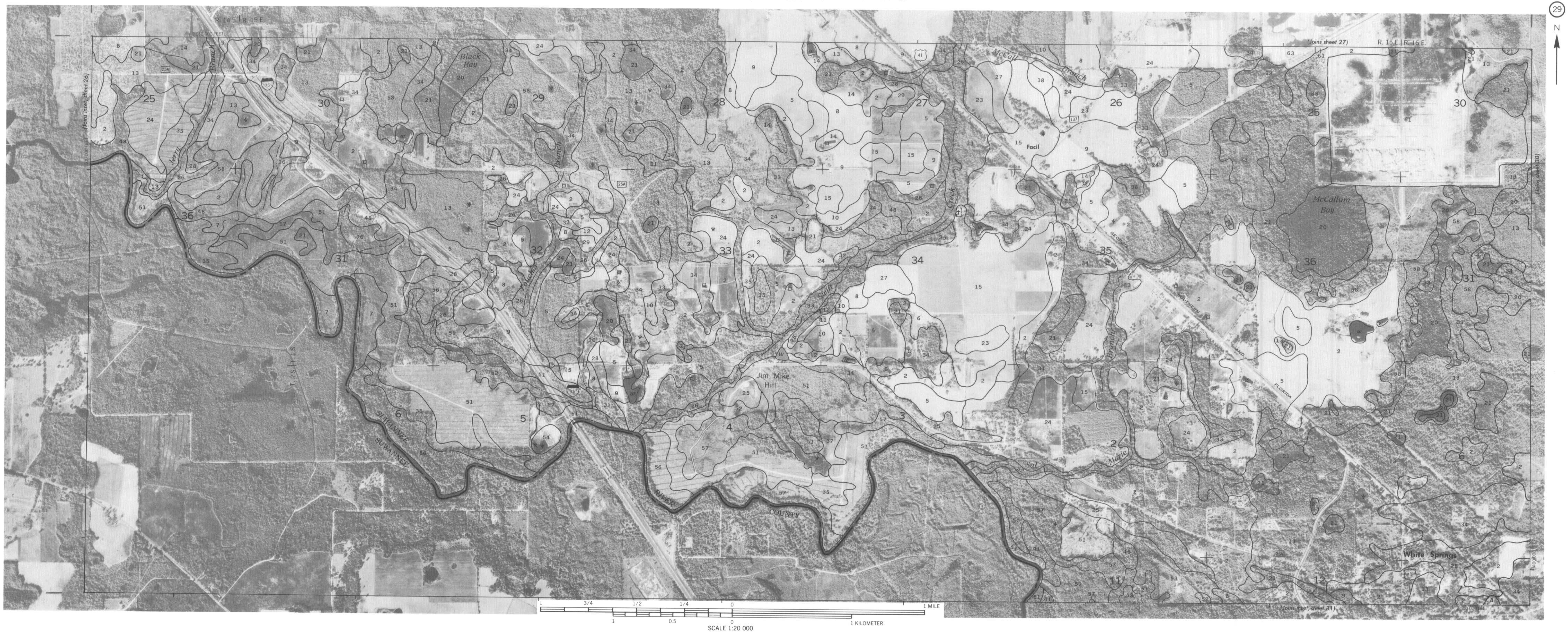

HAMILTON COUNTY, FLORIDA
ATLAS SHEET NO. 30
SCALE 1: 20,000

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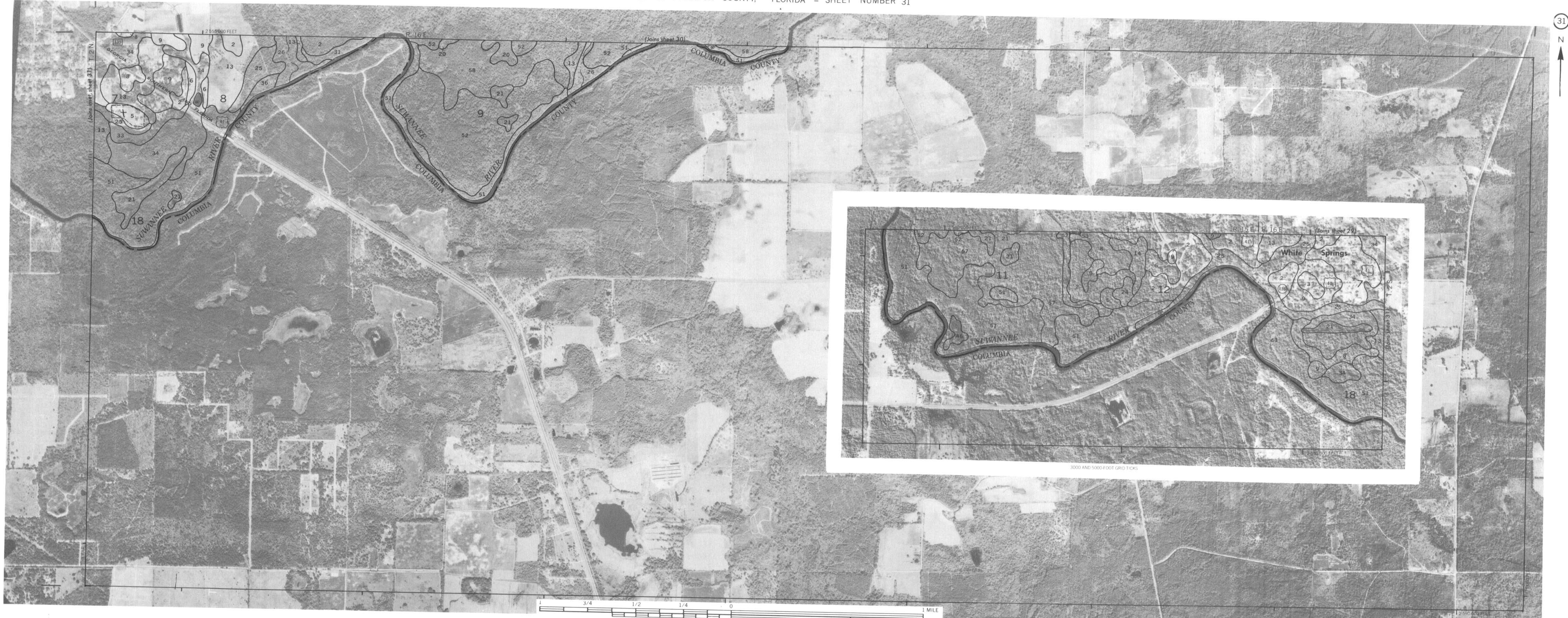

1 3/4 1/2 1/4 0 1 MILE

1 0.5 0 1 KILOMETER

SCALE 1:20 000